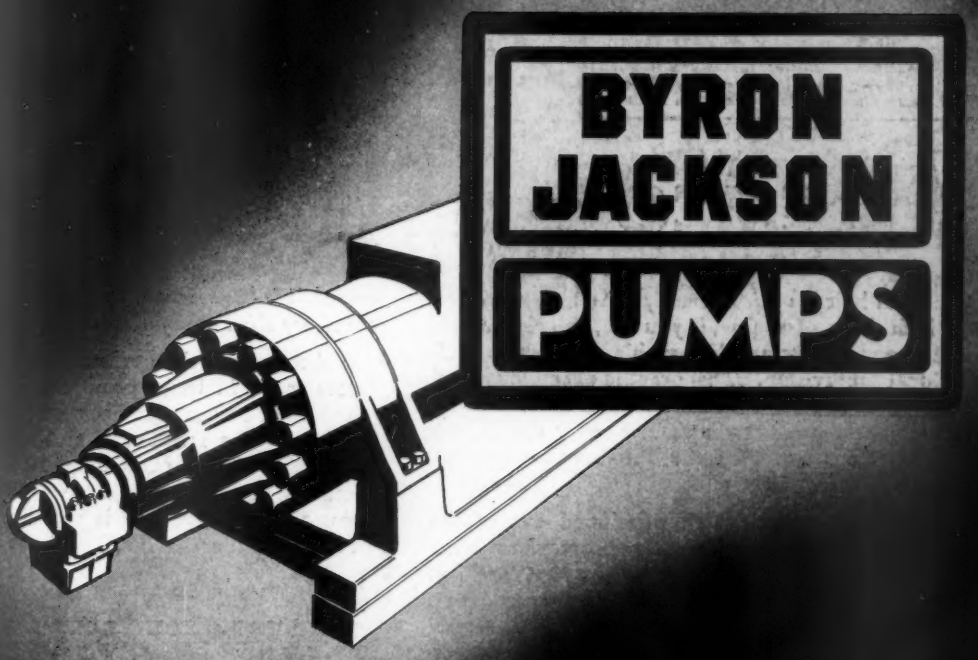
Science Library

AUG 26 1943

the OIL AND GAS JOURNAL



ESTABLISHED 1872

BYRON JACKSON CO. HOUSTON, LOS ANGELES, NEW YORK

PRICE 20 CENTS

41

AUGUST 26, 1943

Hair-Splitting Exactitude . . .

Zeiss Toolmaker's Microscope being used for checking dimensions of newly purchased tap against accurate thread form standards.

TO 1/100,000 OF AN INCH!

PRECISION DIMENSIONAL CONTROL ASSURES ACCURACY AND LONG LIFE

in EMCO METERS AND REGULATORS

A human hair is approximately 3/1000 (.003) of an inch thick. Imagine, if you can, splitting a hair into 300 equal parts and being able to measure each individual subdivision. This graphic example is used to illustrate the almost infinitesimal dimensional measurement that is accomplished every day in the Standards Department of the Pittsburgh Equitable Meter Company.

This department, which developed out of the normal demand for manufacturing accuracy in volume production, was originally installed in 1937 and has been greatly expanded since. Many of this company's achievements in handling wartime projects would have been impossible without the dimensional exactness that is provided through our Standards Department. *We have recently been awarded the "A" rating of the Army Air Forces for quality control.*

Accuracy in the performance of meters and regulators made in large production is of necessity dependent upon the accuracy of the tools, jigs and gages that guide the machining and assembly procedures. The hair-splitting exactitude to which these manufacturing appurtenances are held by Standards control assures an accurately made and fitted product, capable of a long and useful life.

PITTSBURGH EQUITABLE METER COMPANY

BOSTON BROOKLYN BUFFALO CHICAGO COLUMBIA HOUSTON KANSAS CITY

MERCO NORDSTROM VALVE COMPANY

Main Offices, Pittsburgh, Pa.

NATIONAL METER DIVISION, Brooklyn, N. Y.

PITTSBURGH LOS ANGELES MEMPHIS NEW YORK SAN FRANCISCO SEATTLE TULSA

INVEST TODAY IN BONDS FOR VICTORY

General View of Equipment in Standards Room. These quarters are air-conditioned to assure normalcy while tools, gages and parts are tested.

Jones and Lamson Pedestal Comparator and Measuring Machine being used to check a tap for wear after service.

The Zeiss Toolmaker's Microscope in use checking a production part for correct contour against the standard outlined on the projection screen.

Pratt and Whitney Measuring Machine. The Micrometer Graduated Dial reads directly to 1/100,000 of an inch.

DON'T SCRAP that AIRCO Tip!

Let an Airco Repair Station recondition it for you

Copper is one of the most critical materials. It must be conserved.

Here is one way to do it — don't discard a worn Airco welding or cutting tip until you've made certain it cannot be reclaimed. Send all your damaged Airco tips to us. Our skilled repair men will inspect them thoroughly and put them back into first-class working order . . . unless they're beyond repair.

In this way Airco can help you reclaim many tips that would otherwise end up in the scrap-box. So see that all old Airco tips are collected now and forward them to the nearest Air Reduction office.

Here's a typical result of Airco Repair. The tip at left—battered, nicked, and choked with carbon—was made good as new by skillful repairs.

Air Reduction

Buy United States War Bonds

General Offices: 60 EAST 42nd ST., NEW YORK

IN TEXAS: MAGNOLIA-AIRCO GAS PRODUCTS CO.

General Offices: HOUSTON, TEXAS

AIRCO

WILSON

IDLE CYLINDERS ARE PRODUCTION SLACKERS: *Keep 'em rolling for victory!*

ONE OR A THOUSAND!
you SAVE $100
Per Pump—Per Year

REGARDLESS of the number of reciprocating pumps you operate—*one* or a *thousand*—Darcova Pumcups will start paying dividends the first day! They pay off quickly in—Longer Packing Life—Lower Power Costs—Fewer Shutdowns—Longer Liner Life—Greater Pump Efficiency. Your pumps, *new* or *old*, regardless of present packing, will operate with more efficiency, once this money-saving installation is made.

AN IMPORTANT FORWARD STEP IN PUMPING EFFICIENCY

AS WEAR TAKES PLACE FLUID "SLIPPAGE" INCREASES
PUMP PISTON MOTION
REGARDLESS OF WEAR FLUID PRESSURE KEEPS PUMCUP WALL AGAINST CYLINDER
PUMP PISTON MOTION

ORDINARY PACKING

From the minute ordinary packing is installed in your pumps, it begins to wear—and with each stroke of the piston there is additional clearance between packing and liner. This means *slippage*—and *slippage* means loss of efficiency. In other words, *with each stroke, the pump efficiency drops,* until it becomes so low that it is necessary to repack the pump. It is important to note that the friction load *is the same* on both load and return strokes.

DARCOVA PUMCUPS

When *Darcova Pumcups* are installed, constant efficiency is maintained! Because of the cup principle, the fluid pressure presses the side wall out against the liner. This means that, *regardless of wear, there is minimum slippage* (fluid passing between Pumcups and cylinder wall) and *no decrease in pumping efficiency.* Note how upon change of stroke the pressure is released from the inside of the Pumcup so that on the return stroke the *load is less.* This means fewer pump shutdowns and many hours of longer service.

What Are Darcova Pumcups?

•

How Much Can I Save with Darcova?

•

What Do Tests Show about Darcova Efficiency?

•

Why Are Darcovas Best?

•

How Are Darcovas Installed?

•

Can Darcova Solve My Pumping Problems?

•

What about Textures and Sizes?

•

Who Makes Darcova Pumcups?

•

Write today for complete information that will help you get the most for your pumping dollar.

DARCOVA
THE ORIGINAL COMPOSITION CUP

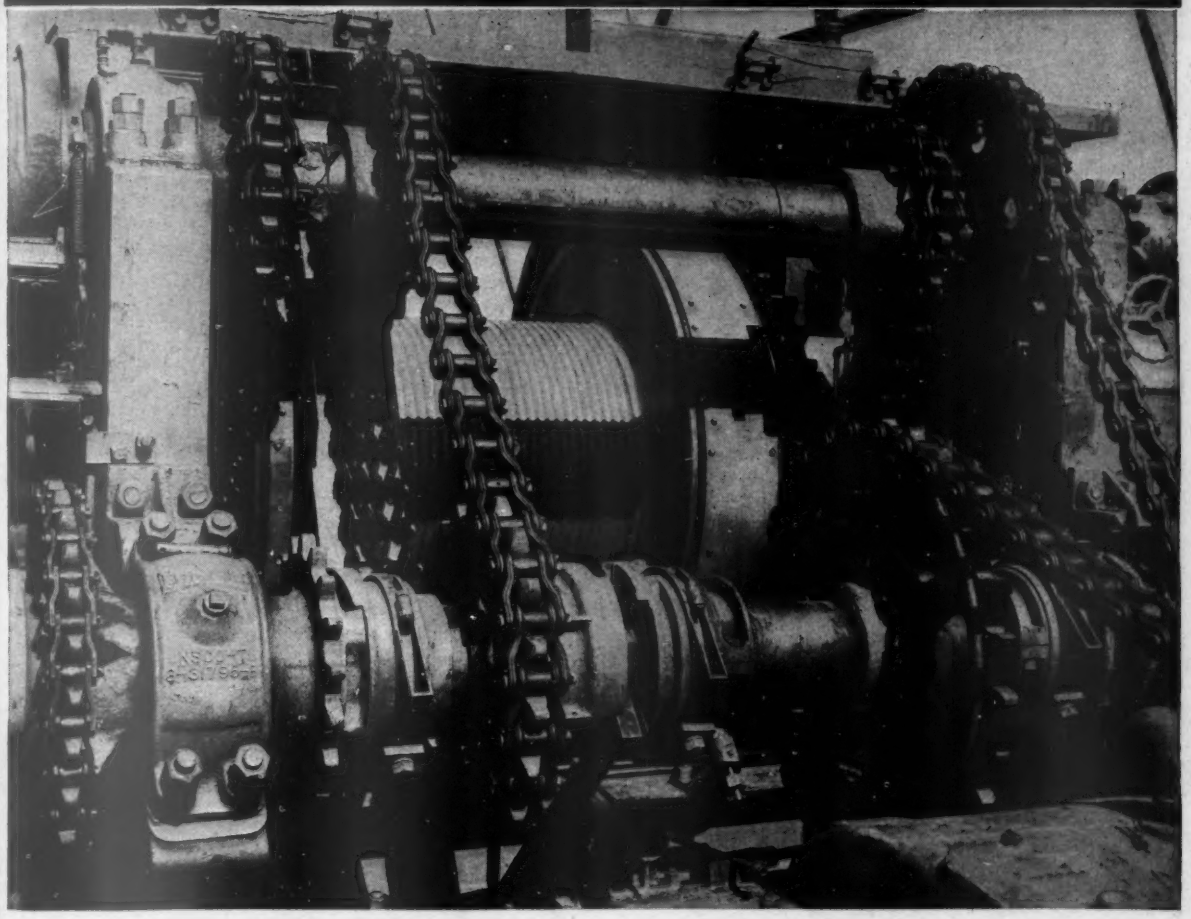
DARLING VALVE & MANUFACTURING CO.
WILLIAMSPORT, PA.

MAIL THIS COUPON

DARLING VALVE & MANUFACTURING CO., Williamsport, Pa., Dept. D
Gentlemen: Without obligation, will you please send me complete information on Darcova Pumcups.

Name _____ Title _____
Company _____
City _____ State _____
No. of pumps we operate _____ Make _____
Type _____ Materials pumped _____

Now, MORE THAN EVER, TAKE GOOD CARE *of Good Equipment!*



5 WAYS TO MAKE CHAIN DRIVES LAST LONGER:

- √ PROPER CLEANING
- √ PROPER ALIGNMENT
- √ PROPER ADJUSTMENT
- √ PROPER LUBRICATION
- √ WELL-FITTING SPROCKETS

● With American production at war, American industry must, of necessity, make the most of what it has . . . . must use it and *re-use* it, *carefully*. We know that users of Link-Belt Chain have good equipment, and our policy is to cooperate in every way possible to help them to make it last longer. To that end we offer this example of one operator's proper care of chain:

Pictured above is a set of chains (Link-Belt 3-Bar Hyper) which was removed when the drawworks went in for repair. The chains were thoroughly steamed, cleaned, inspected and dipped in oil. As a part of the drawworks repair job all sprockets were checked for wear and proper alignment . . . . were replaced where necessary. Now, back from the shop and being set up on location, all chains have been re-installed and properly adjusted. This equipment is again ready for new drilling service . . . . at "new chain" performance.

Link-Belt Company, Indianapolis 6, Houston 2, Dallas 1, Los Angeles 33, New York 7, Toronto 8. Distributors in all fields.

9038

LINK-BELT CHAINS

A TYPE FOR EVERY OIL INDUSTRY SERVICE

A LESSON IN WATER COOLING

LESSON 7 OF A SERIES

INDUCED DRAFT COOLING TOWERS OF HORIZONTAL DESIGN

Any product which consistently leads its field is generally the one which offers the most practical combination of all desirable features at least cost. In the case of mechanical apparatus, careful *designing* is necessary to coordinate the theoretical with the physical factors; and *users' experience* will invariably point out the design which does this best. Note the greater use of *horizontal* steam condensers. Also note the success of heaters, coolers, boilers and other heat-transfer apparatus that employ the cross-flow principle.

The horizontal type cooling tower employing horizontal air-flow is another example. It has won and held first place in its field through the past five years due to the simplicity and soundness of its basic design plus the general excellence of its physical characteristics.

Increasing the efficiency of evaporative water cooling equipment is a matter of accelerating the effective rate of heat transfer. Observe how the design of a horizontal type cooling tower accomplishes this by means of *perfected air-water flow.*

AIR FLOW

AIR VELOCITY: The uniform construction, both horizontally and vertically, of the air inlet louvers, the internal filling and the drift eliminators permits an even, straight-line air flow of uniform velocity for the *full travel* through the cooling chamber.

The fan suction chamber and drift eliminator design make possible the complete, equalized control of air velocity over the entire breadth and height of the cooling chamber.

AIR QUANTITIES: Greater air quantities with least draft loss are possible in horizontal cooling towers since the design permits (a) large and ample air passage through inlet louvers (b) large and ample air passage through the filling (c) large and ample air passage through drift eliminators (d) elimination of obstructions to air flow, such as internal systems for water distribution and baffles and filling laths set broadside to the air flow, and (e) elimination of air turbulence in general.

WATER FLOW

WATER DISTRIBUTION: Complete and uniform distribution of water over the entire cooling chamber is accomplished by evenly spaced nozzles located in the floor of the overhead water distribution basin. This uniformity of water coverage remains constant from top to bottom of the filling.

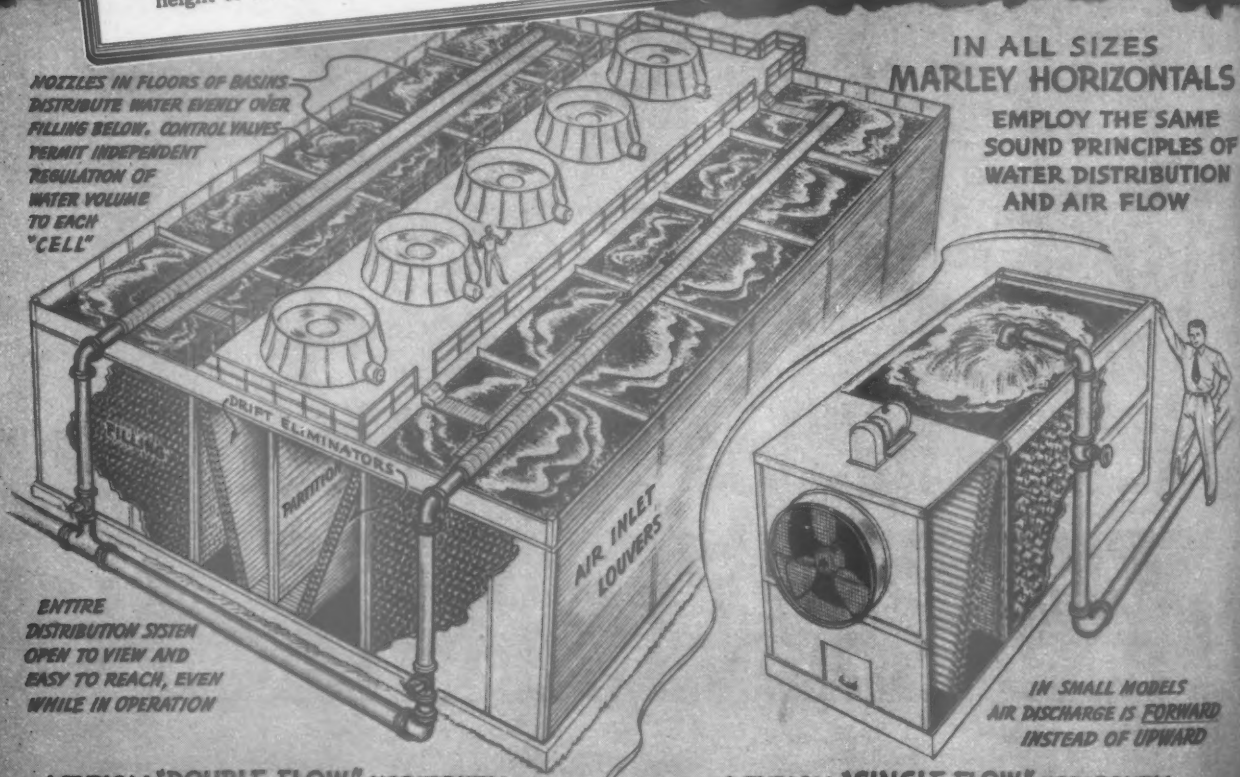
WATER SURFACE EXPOSURE: Initial break-up of water into fine droplets is accomplished by a diffusion deck directly beneath the discharge nozzles. On down through the cooling chamber the filling of staggered laths, on close centers both vertically and horizontally, provides a maximum of break-up and splash surface, a maximum effective wetted surface and minimum air restriction.

Not only does the horizontal cooling tower design achieve a maximum effective heat transfer rate by optimum air-water flow but it also incorporates many other noteable advantages such as

- WATER DISTRIBUTION SYSTEM ENTIRELY EXTERNAL
- PUMPING HEADS EXTREMELY LOW
- BALANCED STRUCTURAL DESIGN, SIMPLE AND RUGGED
- ALL PARTS READILY ACCESSIBLE
- UNUSUAL OPERATING FLEXIBILITY
- POSITIVE DRIFT ELIMINATION
- APPEARANCE PLEASINGLY NEAT AND MODERN

IN ALL SIZES
MARLEY HORIZONTALS
EMPLOY THE SAME SOUND PRINCIPLES OF WATER DISTRIBUTION AND AIR FLOW

NOZZLES IN FLOORS OF BASINS DISTRIBUTE WATER EVENLY OVER FILLING BELOW. CONTROL VALVES PERMIT INDEPENDENT REGULATION OF WATER VOLUME TO EACH "CELL"

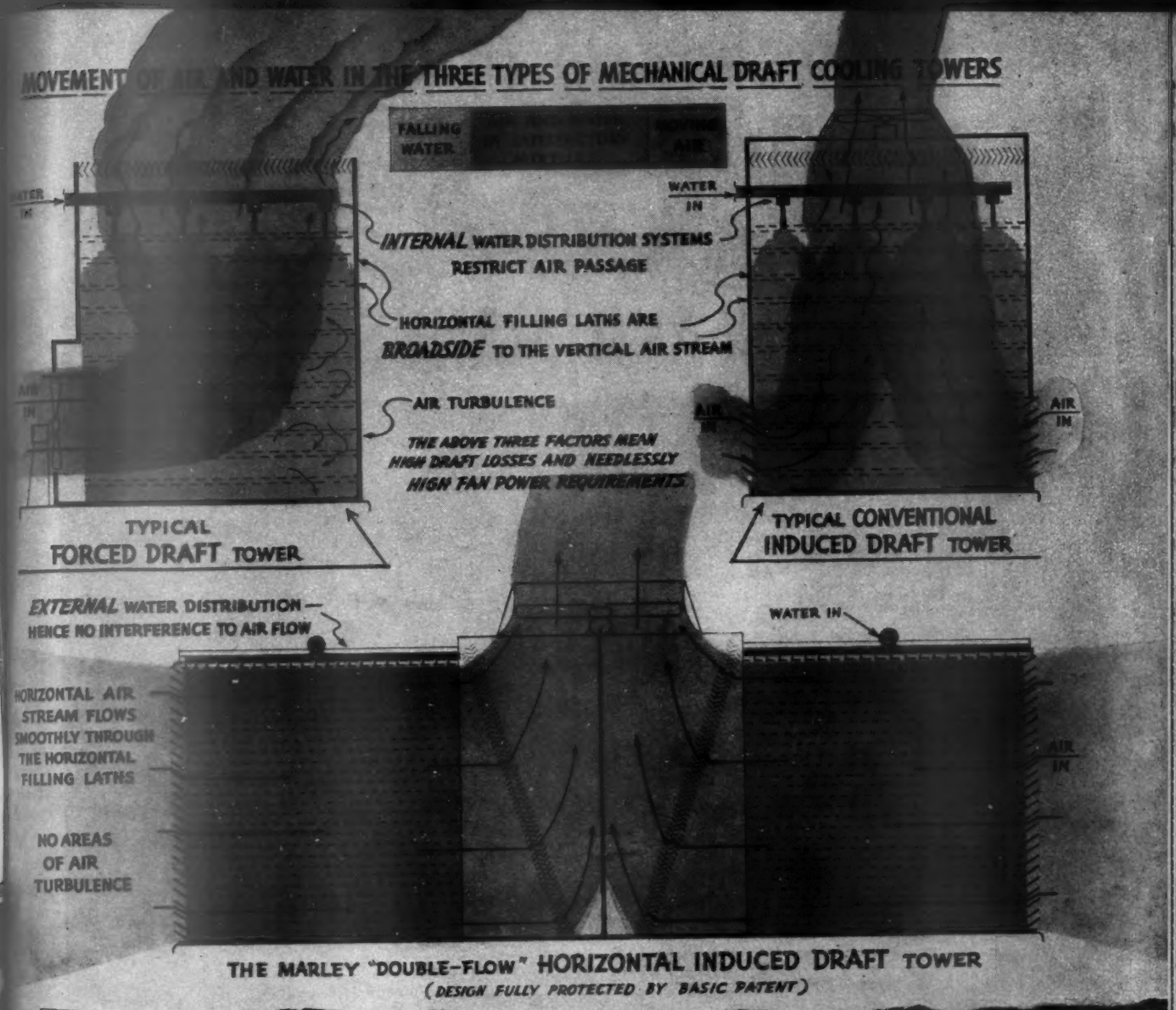


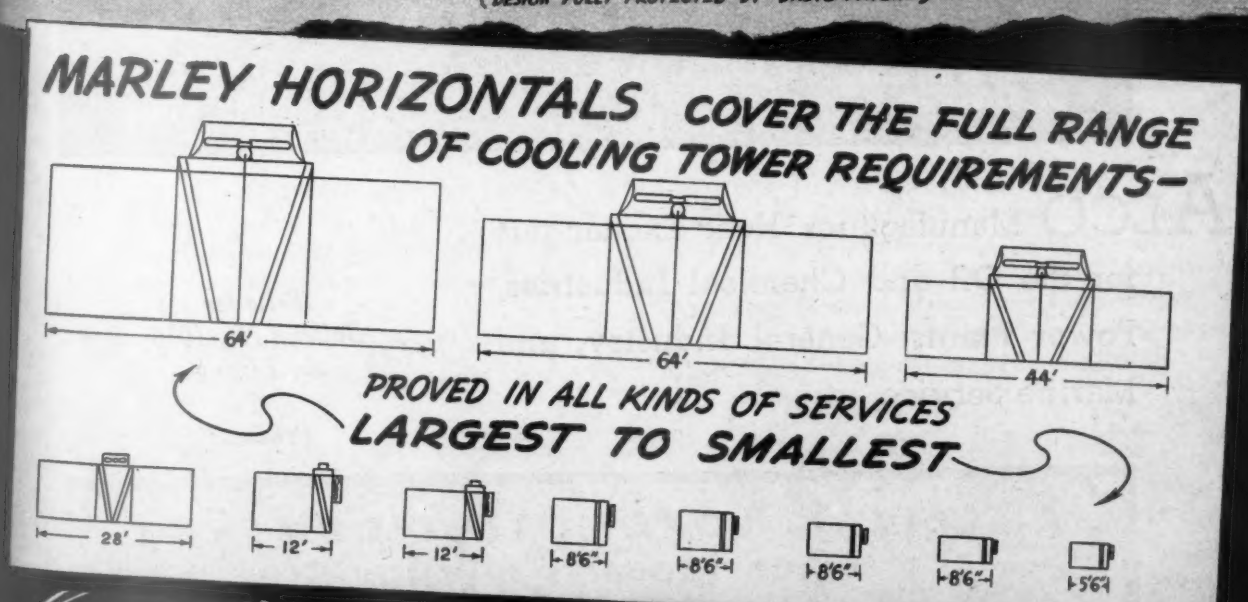
ENTIRE DISTRIBUTION SYSTEM OPEN TO VIEW AND EASY TO REACH, EVEN WHILE IN OPERATION

IN SMALL MODELS AIR DISCHARGE IS FORWARD INSTEAD OF UPWARD

A TYPICAL "DOUBLE-FLOW" HORIZONTAL

A TYPICAL "SINGLE-FLOW" HORIZONTAL


MOVEMENT OF AIR AND WATER IN THE THREE TYPES OF MECHANICAL DRAFT COOLING TOWERS
FALLING WATER
MOVING AIR
WATER IN
INTERNAL WATER DISTRIBUTION SYSTEMS RESTRICT AIR PASSAGE
HORIZONTAL FILLING LATHS ARE BROADSIDE TO THE VERTICAL AIR STREAM
AIR TURBULENCE
THE ABOVE THREE FACTORS MEAN HIGH DRAFT LOSSES AND NEEDLESSLY HIGH FAN POWER REQUIREMENTS
AIR IN
TYPICAL FORCED DRAFT TOWER
TYPICAL CONVENTIONAL INDUCED DRAFT TOWER
EXTERNAL WATER DISTRIBUTION — HENCE NO INTERFERENCE TO AIR FLOW
WATER IN
HORIZONTAL AIR STREAM FLOWS SMOOTHLY THROUGH THE HORIZONTAL FILLING LATHS
NO AREAS OF AIR TURBULENCE
AIR IN
THE MARLEY "DOUBLE-FLOW" HORIZONTAL INDUCED DRAFT TOWER
(DESIGN FULLY PROTECTED BY BASIC PATENT)



MARLEY COOLING TOWERS

THE MARLEY COMPANY
KANSAS CITY, KANSAS

ALCO
ENGINEERS AND MANUFACTURERS

PORTION OF CENTER BAY FOR MACHINING HEAT EXCHANGER TUBE SHEETS, HEADS, AND COVERS.

ALCO Manufactures Heat Exchangers for the Oil and Chemical Industries, Power Plants, General Industry, and Marine Service.

Write for Bulletin No. 1030 for Listing of Products

AMERICAN LOCOMOTIVE COMPANY
ALCO PRODUCTS DIVISION
30 CHURCH ST., NEW YORK (8), N. Y. **DUNKIRK, N. Y.**

BUT A SUCCESSFUL CEMENTING JOB!

Improved *Unaflo—the oil-well cement with retarded set—stays fluid and pumpable all the way down.*

The job might have been a nightmare.

Drilling had reached 13,255′ in this southern Louisiana well, and the next step was cementing a 7″ casing at 12,000′ and a short string of 5″ casing inside the 7-incher at the bottom.

And bottom-hole temperature was 297° F. at 13,255′.

This was no time to take chances. And no chances were taken. *Improved* Unaflo—the oil-well cement that stays fluid and pumpable for extended periods under different hole temperatures and pressures—was on the job.

Down went 450 bags of Unaflo slurry for the 7″ casing—flowing easily down that long, hot string. Then another 125 bags were pumped down for the 5-incher, and here, too, the slurry remained fluid and pumpable all the way because of its *retarded* set.

Whether it's for deep-hole, high-temperature work, or for routine cementing operations, use *improved* Unaflo. Because it stays pumpable for extended periods and then hardens to form a strong, dense, impermeable seal, *improved* Unaflo provides a high factor of safety.

Use *improved* Unaflo on *your* next job. For further evidence of its performance, see Composite Catalog, or send today for your copy of "Case Histories of Oil-Well Cementing." Write to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Amicable Bldg., Waco; Oklahoma City; Kansas City; Chicago; Birmingham.

OG U 38

Wagner
UNIT SUBSTATIONS

are doing their part in the production of steel, synthetic rubber, oil, and other vital materials

The Unit illustrated above is installed in a synthetic rubber plant. The transformer has a two-position liquid-filled disconnecting switch on the high-voltage side which is equipped with low-voltage interlock. The low-voltage side is equipped with air-break circuit-breakers electrically or manually operated, ground indication lights, voltmeters, ammeters, and ammeter test blocks. Unit has one main breaker, one tie transfer breaker, and four feeder breakers.

For Complete Information on Wagner Unit Substations write or phone the nearest Wagner branch office.

Wagner Electric Corporation
ESTABLISHED 1891
6389 Plymouth Avenue, St. Louis, 14, Mo., U. S. A.
ELECTRICAL AND AUTOMOTIVE PRODUCTS

T43-5

Baash-Ross News

BAASH-ROSS TOOL COMPANY · LOS ANGELES · HOUSTON · NEW YORK

OIL & GAS JOURNAL EDITION

How to make one pound of steel do the work of two ... better ... at less cost to you!

IT HAS ALWAYS been good business economy to make *one* piece of equipment do the work of *two* wherever possible. But in these times such simplification is not only good business... *it is vitally essential to the conservation of war-scarce materials!*

Why then, have *two* kellys—one for regular drilling and the other for pressure drilling—when you can do *both* jobs BETTER with *one* Baash-Ross Hexagonal Kelly?

An all-purpose Hex Kelly uses up just *half* as much critical alloy steel—and costs far less—than a two-kelly set-up. Not only that, but it requires just *one* kelly bushing instead of two ... and saves vital time when blow-outs threaten, because there is no time wasted bringing in and changing over equipment from regular to pressure drilling assemblies. A Hex Kelly is *always* instantly ready for either pressure or regular drilling simply by installing or removing pack-off equipment. You don't have to break out and re-connect the swivel ... no bushings to change over ... no wrestling the old kelly out to the rack and the new one in!

And here's an important point to remember ... the big majority of kellys that become bent are damaged while being hauled or racked—or while being pulled into the rig through the window. So by eliminating the need for changing kellys in the middle of a drilling job, you eliminate a major cause of bent kellys ... another vital conservation feature!

BUT THAT'S ONLY A SMALL PART of the full story on Hex Kelly advantages. Not only is the Hex Kelly an *all-purpose* tool, but it does *either* type of drilling job—regular or pressure—far better than single-purpose kellys. For example, the square kelly has long been considered the standard kelly for regular drilling operations. Yet Hex Kellys surpass the square on *every single performance point* important to modern drilling operations ...

▸HEX KELLYS OPERATE SMOOTHER—LENGTHEN EQUIPMENT LIFE! In modern high-speed drilling, balance is an important factor in a kelly. Because Hex Kellys are *machined* to shape from solid alloy steel stock, they are held to much closer tolerances than possible in the *forged* construction of square kellys. Coupled with their true concentric bore and accurate joint alignment, the result is almost perfect weight distribution ... and a smoother-running, better balanced kelly at *all* drilling speeds. *Smoother running means less vibrational strains on other equipment and longer over-all life!*

▸HEX KELLYS STAY STRAIGHT LONGER—REQUIRE LESS MAINTENANCE! One of the biggest factors in kelly "mortality" is loss of straightness. Generally, kellys become bent through improper support while being hauled or racked—improper handling when being dragged in or laid down through the window, or while being swung back in the rathole. In any case, *Hex Kellys are 23.2%* more resistant to these bending stresses than the comparable size of square kelly ... and stay straight longer under more severe operating conditions.*

Once you have tried Hex Kellys, you'll find, as others have, that the longer kelly life, the lower maintenance costs, the greater rigidity provided by this one feature *alone* are sufficient to justify a complete switch to Hex Kellys for *all* your drilling requirements.

▸HEX KELLYS REDUCE STRAIN ON PUMPS! Hex Kellys have 48%* more circulation area than comparable size square kellys. That means your pumps can put a *higher* volume of fluid through your string at *lower* working pressures. You not only get *better* circulation, but longer pump life, less pump maintenance as well!

▸HEX KELLYS ARE STRONGER IN TORSION! Since the stress of rotating the entire drill string is concentrated in the kelly, its ability to transmit torque without failure is tremendously important. Because of its shape and greater cross-sectional area, *the hexagonal kelly is 28.6%* stronger in torque than the comparable square kelly—an important advantage!*

▸HEX KELLYS ARE STRONGER IN TENSION! Besides *rotating* the string, the kelly must also *support* it ... and here again the Hex Kelly has an edge, being 1.8%* *stronger in tension than the comparable size square kelly.*

---

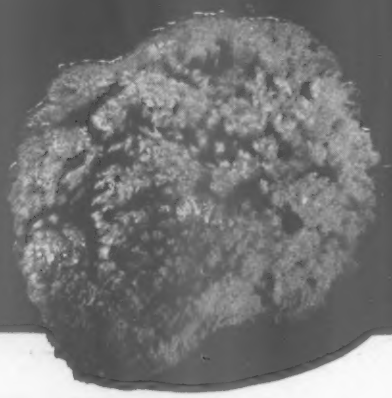
*These figures are based on the widely-used 6" square kelly with the 3½" bore vs. the 6⅛" hexagonal kelly with 4½" bore. Because it is the maximum dimension that governs the selection of a kelly size, the 6⅛" hexagonal (across-corner dimension 7¾") is comparable to—in fact, is actually ⅛" *smaller* in its limiting dimension than the 6" square kelly (across-corner dimension 7⅞"). *In other comparable sizes, Hex Kellys offer proportionate advantages.*

So again we ask—when you can buy *one* kelly that will do the work of two—do it far *better* at *less* overall cost—why waste *your* money and the nation's vital materials buying anything less than a Baash-Ross HEX Kelly?

Why not call your nearest Baash-Ross representative today and find out how little it costs, how much it pays, to use Baash-Ross Hexagonal Kellys? Or write direct for full information!

PORUS ★ KROME

IS A COUSIN TO *Phylum Porifera*



Phylum Porifera is the marine animal that deposits sponges in the sea. Sponges are porous. Hold liquids.

PORUS-KROME is the process that deposits a very particular kind of chromium on bearing surfaces. It, too, is porous. Holds oil.

When chromium is applied to cylinder bores by the PORUS-KROME process, it provides an extremely hard-wearing surface filled with minute oil reservoirs. This assures vastly improved lubrication, reduces wear on the cylinder, rings and ring grooves. Oil consumption is held constant. Power and efficiency are maintained at high levels. Engine overhaul is reduced.

These are the big reasons why PORUS-KROME is being used on an ever-increasing number of internal combustion engines for aircraft, motor ships, tanks and other piston-activated equipment. The reasons are explained more fully in our newest literature. Write for it.

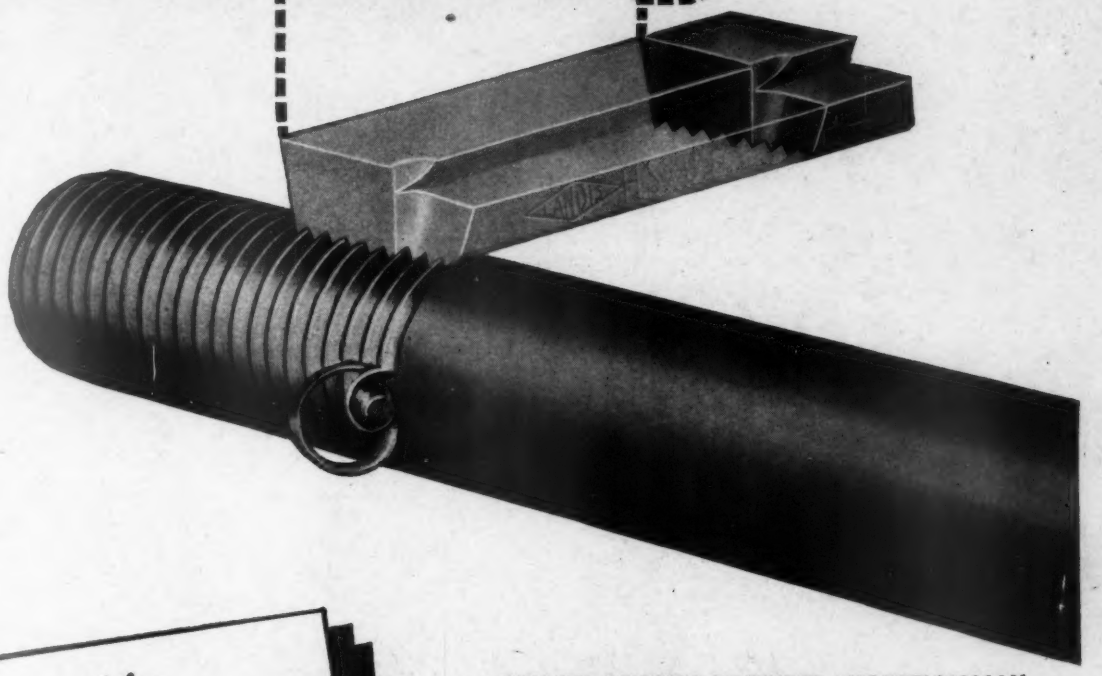
VAN DER HORST

PORUS ★ KROME

Multiplies Engine Life

VAN DER HORST CORPORATION OF AMERICA CLEVELAND, O. OLEAN, N. Y.

WITH THE LANDIS CHASER APPROXIMATELY 80% OF THE CHASER'S LENGTH IS *USABLE*



12 Features of the LANDIS TANGENTIAL CHASER

1–Permanent throat permits close to shoulder threading throughout life of chasers
2–Rake angle range covers all machinable materials
3–Free cutting condition permits maximum cutting speeds
4–Simple grinding operation renews entire cutting edge and leading feature
5–Line contact with work lessens friction and minimizes thread distortion
6–Leading feature insures thread of accurate lead
7–Lateral absorption of cutting strain reduces vibration and chaser breakage
8–Right and lefthand threading feature reduces chaser equipment
9–Standard chasers thread all diameters with proper chaser holders
10–Interchangeability of chasers lowers operating cost
11–Chaser length provides exceptionally long life and low tool cost
12–Permanent throat gives equal distribution of cut

CHASER LENGTH PROVIDES EXCEPTIONALLY LONG LIFE AND LOW TOOL COST

Since the design of the Landis Chaser makes it possible to regrind approximately 80% of its length, with the cutting edge renewed at each regrinding, it has an exceptionally long life and thereby reduces chaser cost to a minimum. Conservatively estimated, the life of the Landis Chaser is from ten to twenty times that of the hobbed type die.

The Finest Thread Cutting Tool in Industry

LANDIS MACHINE COMPANY

WAYNESBORO, PA., U.S.A.

THREADING MACHINERY—THREAD CUTTING DIE HEADS—COLLAPSIBLE TAPS

REPRESENTED IN THE DOMESTIC OIL FIELDS BY:

Colcord-Wright Machinery & Supply Co., St. Louis, Mo.; C. J. Harter Machinery, Houston, Texas: Frederic-Baker Co., New Orleans, La.; Moore Machinery Co., Los Angeles and San Francisco, Calif.; Hendrie & Bolthoff Mfg. & Supply Co., Denver, Colo.

HUDSON ENGINEERING

Engineers and Constructors

Our integrated engineering and construction organization, capable thru training and experience in economy study, process design, mechanical design, purchasing, expediting, and complete construction of oil and gas processing plants, is available for additional war projects.

REFINERY PROCESS PLANTS

GAS COMPRESSOR STATIONS

GAS LINE ABSORPTION PLANTS

DISTILLATE RECOVERY PLANTS

FRACTIONATION UNITS

DEHYDRATION PLANTS

NATURAL GASOLINE PLANTS

DESULPHURIZATION PLANTS

HELIUM RECOVERY PLANTS

☆

CORPORATION

HOUSTON, TEXAS

HUDSON COOLING TOWERS—natural and mechanical draft—are pre-fabricated in our modern cooling tower mill at Houston.

WeldELLS have everything ★

"For MY KIND of work, give me WeldELLS"

THIS maintenance job is a tough spot in anybody's language. But the piping end of it would be a bed of roses if all the lines were welded with WeldELLS!*

Give me a good man with a torch, and a stock of WeldELLS, and I'll show you how to lick those quick changes that come up these days, too. WeldELLS have everything it takes to speed up the job and cut the costs—tangents that make them easy to line up; quarter-markings to guide the work; clean bevels and lands that make welding both good and fast. You don't have to grope for the proper size either, because the size and weight is marked right there on the fitting.

When the job is done with WeldELLS it's done for keeps. There's no tinkering or trouble shooting. For my kind of work, give me WeldELLS!

★ No other fittings for pipe welding combine these features found in WeldELLS:

- **Seamless** — greater strength and uniformity.
- **Tangents** — keep weld away from zone of highest stress — simplify lining up.
- **Precision quarter-marked ends** — simplify layout and help insure accuracy.
- **Selective reinforcement** — provides uniform strength.
- **Permanent and complete identification marking** — saves time and eliminates errors in shop and field.
- **Wall thickness never less than specification minimum** — assures full strength and long life.
- **Machine tool beveled ends** — provide best welding surface and accurate bevel and land.
- **The most complete line of Welding Fittings and Forged Steel Flanges in the World** — insures complete service and undivided responsibility.

TAYLOR FORGE & PIPE WORKS, General Offices & Works: Chicago, P. O. Box 485

WeldELLS are just one of many Taylor Forge products that are vital to war and victory. An example is huge rolled steel rings—an important part of U.S. tanks now in action.

NEW YORK OFFICE: 50 CHURCH ST. • PHILADELPHIA OFFICE: BROAD ST. STATION BUILDING

* WeldELLS and many other Taylor Forge products are produced in Byers Genuine Wrought Iron.

WORLD'S DEEPEST PRODUCING SAND—

Logged by Schlumberger

Schlumberger extends congratulations to Union Producing Company and the Fohs group (Fohs Oil Company, DeLarge Oil Company and Foroy Petroleum, Inc.) for their notable achievement in completing the world's deepest producing well, No. 1 Fitzpatrick-Vizzard, Terrebonne Parish, Louisiana. The new record holder is producing from a gas-condensate sand which was perforated at 13,457 to 13,490 feet. In addition to logging the sand, Schlumberger side wall cores were taken below 13,500 ft.

The efficient performance of Schlumberger electrical logging, gun perforating, side wall coring, dipmeter and other instruments at extreme depths is predetermined in the unique Schlumberger testing laboratory where experiments are conducted with these instruments under pressures and temperatures equivalent to those that should be encountered in a twenty thousand foot well.

SCHLUMBERGER WELL SURVEYING CORPORATION

HOUSTON, TEXAS

McKee is building for *War* ...and planning for *Peace*

RESULTS of the Refining Industry's war effort can be seen in war communiques from every front. The new petro-chemical products which keep allied planes flying higher, farther, faster — the modern fuels and lubricants for tanks and ships are no small factor in United Nations' progress toward victory.

Arthur G. McKee & Company have shared the industry's wartime responsibility by engineering and constructing plants for producing new petro-chemical products in vast quantities. McKee will continue to aid the Refining Industry's efforts until final victory is won.

The return of peace will impose a new responsibility. It will become the American refiner's obligation of victory to supply the products of advanced refining technique to the world. McKee is prepared to aid NOW in your planning to meet this Post-War obligation.

The services of process specialists, petro-chemical engineers, designers and skilled construction personnel, thoroughly experienced in advanced refining techniques, are available to you in the McKee organization.

Arthur G. McKee & Company

★ *Engineers and Contractors* ★

2300 CHESTER AVENUE • CLEVELAND, OHIO

CLASS OF SERVICE DESIRED

DOMESTIC		* CABLE	
TELEGRAM		ORDINARY	
DAY * LETTER		URGENT RATE	
SERIAL		DEFERRED	
NIGHT LETTER		NIGHT LETTER	

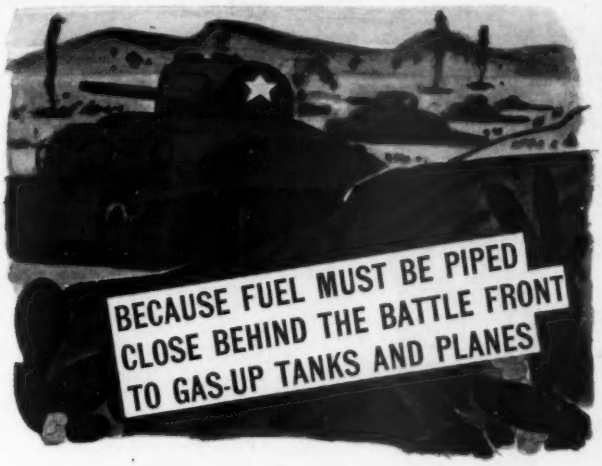
Patrons should check class of service desired; otherwise the message will be transmitted as a telegram or ordinary cablegram.

WESTERN UNION

TIME FILED

Send the following telegram, subject to the terms on back hereof, which are hereby agreed to

STILL UNABLE TO SUPPLY ALL YOU NEED OF G-B ROLAGRIP AND GRUVAGRIP PIPE COUPLINGS... SEGWELD FITTINGS... FIBERGLAS INSULATION AND OTHER G-B PRODUCTS



The management and employees of the Gustin-Bacon Manufacturing Co. are proud to receive the joint award of the Army and Navy, presented to our Kansas City plants. We are keenly aware of the important responsibility it imposes upon us to increase the production of our Fiberglas insulation, Rolagrip and Gruvagrip pipe couplings, Segweld fittings and the many other G-B products that are helping to win the war today, and will help to build a better world tomorrow.

GUSTIN-BACON MFG. CO.

KANSAS CITY, MISSOURI

New York Philadelphia Chicago
Tulsa Houston San Francisco

G-B ROLAGRIP PIPE COUPLINGS FOR PLAIN END PIPE

Saves threading, grooving, or beveling pipe ends. Permits use of lighter pipe. Simple — only 3 parts. Speedy to install — only 2 bolts to tighten with ordinary wrench. Safe — controls movement due to expansion, contraction, and flexing. Affords a permanent, leak-tight seal.

G-B SEGWELD PIPE FITTINGS

Double welded on precision jigs. Varied pitch welding bevel cut on automatic machines. Afford greater strength. Save man hours. Supplied with plain, grooved, threaded, or flanged ends—galvanized, cadmium or lacquer finishes.

G-B GRUVAGRIP PIPE COUPLINGS

A simple, easily installed, leak-tight coupling for grooved end pipe.

G-B MFG. CO.

U. S. NAVY OFFICIAL PHOTO

PLASTITE CEMENT

Specially developed for superior bonding of insulation and facings to steel surfaces with or without the use of mechanical fasteners.

FIBERGLAS INSULATION →

Processed and supplied in special forms for special industrial uses by Gustin-Bacon. Extensively used to more efficiently insulate passenger, refrigerator, and tank cars in the railway field, ships of many kinds in the marine field, aircraft, etc.

GUSTIN-BACON MFG. CO.

KANSAS CITY
MISSOURI
CHICAGO • NEW YORK
PHILADELPHIA • SAN FRANCISCO
TULSA • FT. WORTH • HOUSTON

When Someone Yells "FIRE!"

WHO MAKES THE NEXT MOVE?

What happens, if fire strikes in your plant?

Who grabs an extinguisher and hits the blaze hard, without panic, without fumbling? Who understands fire-fighting and the weapons with which fires are quickly snuffed out? *How many of your employees know how to handle an extinguisher?*

Fire extinguishers are easy to understand, and the basic facts about fire are simple. The best way to train your workers is by actual *demonstration.* Show them real fires, with extinguishers in action. Stage these demonstrations at your own plant, using your own equipment.

Walter Kidde & Company will send you "How To Teach Fire-Fighting." It tells how to handle demonstrations effectively, how to explain extinguishers and various types of fires. Write now for your own copy. We'll mail it promptly.

Walter Kidde & Company, Inc.
839 Main Street **Belleville, N. J.**

Kidde
PROTECTS LIVES
HIGH PRESSURE CASES • FIRE PROTECTION

THE magic of Electronics will be used in every plant to create new and useful products—to multiply production—to effect economies—to do heretofore impossible tasks of measurement and control of industrial processes.

Already, M-H/Brown engineers have pioneered and developed new Electronic instruments which will take the word "impossible" from the industrial lexicon.

In this hour of history M-H/Brown engineers fittingly symbolize our faith in the future—that Electronic instrumentation (now at war) will blaze new trails in the manufacture of peacetime products. The Brown Instrument Company, 4488 Wayne Avenue, Philadelphia, Pennsylvania, a division of Minneapolis-Honeywell Regulator Company, Minneapolis, Minnesota. Offices in all principal cities. 119 Peter Street, Toronto, Canada—Wadsworth Road, Perivale, Middlesex, England—Nybrokajen 7, Stockholm, Sweden.

Instruments by **BROWN** *and Controls by*

THE WELL THAT STARTLED THE WORLD

Was Drilled With a

ROTARY RIG

If General Nathan Bedford Forrest had described the discovery of the world's first flowing oil (Spindle Top, January 10, 1901) he likely would have said: "Cap Lucas got thar fustest with the mostest!"

The new 32 billion-dollar oil industry (thanks much to the famous Lucas Gusher) concedes that Captain Anthony F. Lucas got there with the "bestes," because all previous attempts with other drilling methods than the rotary drill had continuously failed.

Many oldtimers have said: "The Rotary made Spindle Top." Others have just as loudly sworn: "Spindle Top made the Rotary." We, at American Well & Prospecting Company, are justly proud of the first statement because it was our pioneer work on the crude rotary outfit that we began perfecting six years before Spindle Top that made the Lucas Gusher possible. We agree with the latter statement because our rotary's success at Spindle Top revealed to our pioneering organization the possibilities, not only in the rotary method, but in the oil industry. By that token, we began expanding . . . *and improving* . . . the Gumbo Buster line of rotary drilling equipment until it is today one of the world's leading lines in this vital industry.

We proudly fly this flag, our award for excellence in war materials production

GUMBO BUSTER PRODUCTS

- Rotaries and Rotary Drive Transmissions
- Draw Works for Steam, Electric and Power Rigs
- Rotary Drilling Engines (Steam)
- Slush Pumps (Geared Power and Steam)
- Boiler Feed and High Pressure Pumps
- Crown and Traveling Blocks
- Pump Liners and Rods
- Swivels
- Slush Pump Valves and Seats
- Line and Throttle Valves (Steam)
- Reverse Clutches
- Kelly Joints
- Rig Lighting and Utility Units

THE AMERICAN WELL & PROSPECTING CO.

GUMBO BUSTER

CORSICANA, TEXAS

DISTRIBUTED BY:
Republic Supply Co., Houston
Bethlehem Supply Co., Tulsa

EXPORT OFFICE:
Petroleum Machinery Corp.,
30 Rockefeller Plaza, N.Y.C.

STRENGTH, TOUGHNESS, and resistance to fatigue—are the essential qualities of Oil Well Tubing. With conservation the order of the day for all oil country tubular products, these factors become increasingly important.

OIL IS NOW FLOWING through this 24-inch line built completely of National Seamless Pipe. National Tube Company turned out the 550 miles of this huge pipe in the record-breaking time of four months.

WALLS WITHOUT WELDS

AMERICA'S SOURCE OF POWER

and delivers the punch to our fighting fronts!

A DRILLER in Texas probes thousands of feet underground with a string of drill pipe. He strikes oil! How that oil gets to the battle fronts in Guadalcanal, China, Australia and Africa is a continuous story of seamless steel pipe and tubing.

Pipe brings the oil to the surface and hustles it off to the nearest refinery or shipping point—helps fill tankers, tank cars and trucks.

In the refinery a maze of pipe conducts the oil through various processes until it is cracked into a myriad of ingredients. Here large quantities of alloy steel pipe and tubing, especially resistant to corrosion at high temperatures, help keep refineries operating continuously — day and night. Here's where America's "liquid gold" is transformed into gasoline for airplanes, tanks and jeeps—fuel oil for battleships, steel mills and other vital services and grease to keep the wheels of war whirling.

Wherever you look you will find pipe and tubing in one form or another doing a job essential to the war effort. Whether it's 24-inch seamless pipe for the world's biggest oil line or ¼-inch tubing that feeds a gasoline engine, the plants of NATIONAL Tube Company are working "round the clock" so that the "big punch" will not be slowed by lack of sufficient pipe for furnishing oil and gasoline to the remotest fighting front. In oilmen's language "pipe taps the source and delivers the punch."

NATIONAL TUBE COMPANY

PITTSBURGH, PA.

United States Steel Export Company, New York

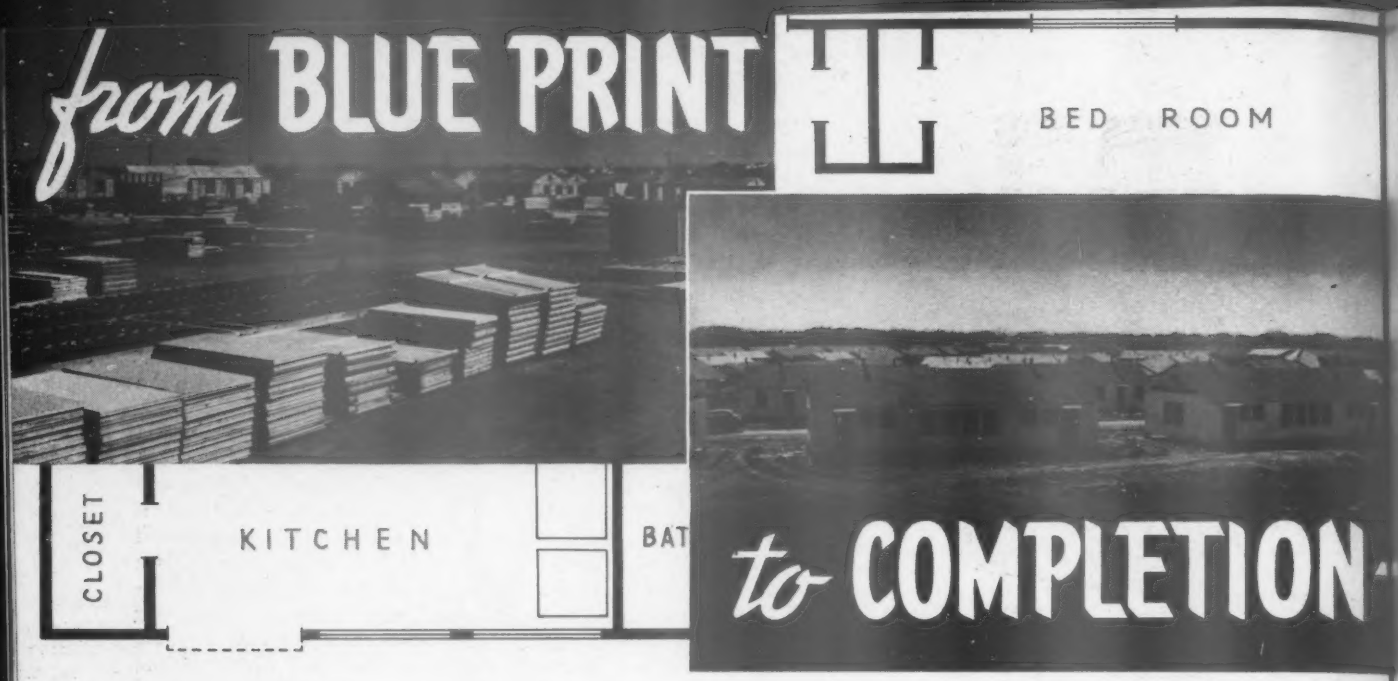
UNITED STATES STEEL

A TANKER REQUIRES large quantities of pipe and tubing to properly handle its cargo. In addition, numerous types of pipe are required for dozens of other applications above and below deck.

TUBES OF EVERY PERMISSIBLE GRADE of steel needed by refineries to assure continuous and efficient operation are made available by National Tube Company's Complete Tube Service.

ON THE WAY TO THE FRONT—gasoline and oil delivered by National Seamless Tubing keep the airplanes flying, the tanks and mechanized units rolling, and the ships sailing on the seven seas.

NATIONAL SEAMLESS



Complete Housing Projects Planned, Fabricated and Erected by ONE ORGANIZATION

Responsibility for an entire housing project placed with the right organization will eliminate unnecessary delays and misunderstandings, as well as saving time and money on the completed project.

For 24 years the Southern Mill & Manufacturing Company has furnished the oil industry with complete field housing units that were designed, fabricated and erected by Southern Mill craftsmen. Operation under the turnkey type housing contract is especially advantageous in the oil industry, because it enables the contractor to eliminate red tape, speed construction and stand ready to assume complete responsibility for the project.

Whether the need is for one STURDYBUILT unit or a thousand, the entire job from the blue print to completion, can be handled efficiently and economically through an over-all contract with the Southern Mill & Manufacturing Company.

Distributors of: Curtis Woodwork and Johns-Manville asbestos, asphalt and insulating materials

SOUTHERN MILL & MANUFACTURING CO.

Wichita, Kansas **TULSA, OKLAHOMA** Longview, Texas

PRICE tells something of quality in wire rope . . . but performance tells more! Performance comes from what is put into the rope, and who put it in. The maker means more than the material, price, specifications . . . In years of hard jobs the world over, in records of cost and safety, in war service on land and sea and in the air . . . Rochester ropes have made Rochester a good name in wire rope . . . Today, all our output goes to government and high priority industries. Tomorrow, when you can get all the wire rope you want, remember Rochester when you want the best!

ROCHESTER *Ropes*

JAMAICA, NEW YORK • CULPEPER, VIRGINIA

ON THE
CONTROL OF FLOWING WELLS

No. 5 1943 DALLAS, TEXAS

TWO-ZONE COMPLETIONS GREATLY SIMPLIFIED WITH OTIS TYPE G SIDE-DOOR CHOKE

The Otis Type G Side-Door Choke provides a means for opening and closing circulating ports in the tubing string a short distance above the packer, after the packer has been set and surface connections permanently tied down.

Both zones can therefore be safely circulated or swabbed-in without moving the tubing string or changing surface connections. After the annular space and tubing are unloaded, the circulating ports are closed simply by setting the Side-Door Choke. This completely separates the two zones and permits them to be produced independently of each other.

USE GAS FROM UPPER ZONE TO FLOW LOWER ZONE . . .

The Otis Type G Side-Door Choke also furnishes a means to utilize gas from an overlying gas zone to assist oil to flow from a lower zone.

Through a small side orifice in the cup mandrel a controlled volume of gas from the upper zone is allowed to enter the tubing, reducing the weight of the oil column and causing the lower zone to flow.

A removable back pressure valve in the lower end of the choke landing nipple prevents the upper zone from charging the lower zone.

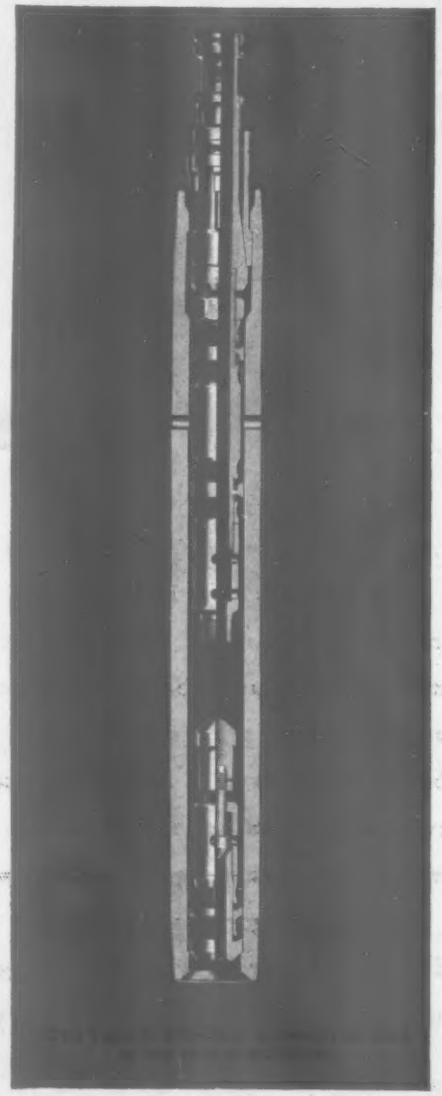
INSTALLED UNDER PRESSURE . . TUBING NOT DISTURBED

Without disturbing the tubing or well pressure, the Otis Type G Choke can be run and pulled on an ordinary steel measuring line.

A special equalizing device constructed within the choke has greatly simplified this operation, particularly where the two zones have a considerable differential in pressure.

Trained Otis Service Crews are available in most major oil fields for the installation of sub-surface pressure tools and for the running and pulling of tubing or packers under pressure.

NOW YOU CAN TAKE BOTTOM HOLE PRESSURES OF EITHER PAY IN TWO-ZONE WELLS . . . OTIS TYPE G SIDE-DOOR CHOKE PERMITS ACTUAL GAUGING WITHOUT MOVING TUBING



Because the annular space between the tubing and casing is used as a flow conductor from one pay of a two-zone well, the actual gauging of bottom hole pressures from this particular zone cannot be taken in the conventional manner.

The Otis Type G Side-Door Choke provides a means to actually record the pressure of either zone independently of the other with a regular bottom hole pressure gauge. Operators were quick to recognize the utility of this simple and practical tool and have generally adopted it as standard equipment for two-zone flowing wells.

By equipping the choke with a pack-off section which has an open vertical bore, but no side inlet, the upper formation is blanked off and pressure can be taken of the lower zone only. Likewise, if a pack-off section with a side inlet is used, but with the lower end of the vertical bore closed, the lower zone is blanked off, permitting pressures of the upper zone only to be taken.

In the latter operation, a newly devised equalizing attachment is used when the lower zone has the greater pressure. This device makes it possible to equalize pressure across the choke, thereby permitting the slight downward movement which is necessary to release the locking mechanism to permit pulling the tool.

This whole operation of recording Bottom Hole pressure can be accomplished under pressure, and without moving the tubing.

Branches: Houston and Corpus Christi, Texas; Hobbs, New Mexico; New Iberia, Louisiana; Magnolia, Arkansas.

Representatives: Otis Eastern Service, Inc., Wellsville, N. Y.; Western Pressure Control, Los Angeles and Bakersfield, Calif.

Export Office: 74 Trinity Place, New York City

- **Lane-Wells RADIOACTIVITY LOGS** accurately locate potential producing zones in existing wells which may have been passed by in the original completion program.
- **Lane-Wells GUN PERFORATOR** opens secondary producing zones for additional production to increase each well's ultimate output.
- **Lane-Wells PACKERS and BRIDGING PLUGS** make possible efficient, economical production of oil from secondary zones with a minimum requirement of steel per barrel of oil produced.

Lane-Wells 3-WAY OIL FIELD SERVICES

Lane-Wells alone can give you these vital services for the maintenance of maximum production from your wells. Call the "Lane-Wells Service Engineer". He will be glad to help you plan a program of sustained production of oil to meet today's requirements.

THE CONSOLIDATED MASS SPECTROMETER

Analyzes Gas and Liquid Mixtures More Rapidly . . . More Accurately

CONSOLIDATED ENGINEERING CORPORATION

MIXTURE 164

C_4, C_5, & C_6 PARAFFINS, CYCLICS & AROMATICS

Mol. Wt.	Boiling Point		100 Plate Fractionating Column	Ultra Violet Abs	Mass Spectrometer	Difference
58	-12.2 to -0.5°	Butanes	7.7%	.....	6.8	+0.9
72	28 to 28°	Pentanes	3.5	.....	4.4	-0.9
86	49.7°	2-2 Dimethylbutane	12.9	.....	14.1	-1.2
70	49.5°	Cyclopentane	1.5	.....	1.9	-0.4
86	58.0°	2-3 Dimethylbutane	8.7	.....	7.8	+1.1
86	60.2°	2-Methylpentane	30.4	.....	29.2	+1.2
86	63.2°	3-Methylpentane	12.8	.....	13.6	-0.8
86	68.8°	N-Hexane	11.8	.....	12.0	-0.2
84	71.9°	Methylcyclopentane	8.0	.....	8.5	-0.5
78	80.1°	Benzene	(2.7)	(1.9)	1.9	+(0.8)(0.0)

Under routine conditions, these analyses can be made at the rate of 9 per eight-hour day. Each analysis of this particular set of components requires approximately 4¼ man hours.

By means of the Consolidated Mass Spectrometer and Associated Techniques, mixtures of many other types can also be analyzed with speed and accuracy.

FOR EXAMPLE:

Wet Gas } Helium can be determined in such
Dry Gas } mixtures in a few minutes

Alkylation & Isomerization Plant Feedstreams

Butadiene in C_1-C_4 Paraffins and Olefins

C_4 Acetylenes and Dienes

Aromatics in the presence of C_6, C_7 and C_8 Paraffins, Olefins & Naphthenes

And many more

Analyses of some of the simpler mixtures can be made at the rate of as many as 16 per day.

Many time-consuming and difficult analyses in your plant will yield readily to this new instrument. Write for information regarding its application to your analysis problems.

Consolidated Engineering Corporation Mass Spectrometers are available to War Industries on a basis which provides ample protection in future developments in this field.

CONSOLIDATED ENGINEERING CORPORATION

Herbert Hoover, Jr., President

1283 EAST GREEN STREET · PASADENA, CALIFORNIA

An important wartime use for Texasteel Pumping Equipment

ELECTRIC STEEL

Many of those devastating mortar shells which our boys are lobbing over to rain death on the Japs are cased in Texasteel Electric Steel which normally might have been fabricated into equipment to help pump some of your wells.

Our experience in the manufacture of Army ordnance items will have an important effect on the Texasteel pumping equipment you'll buy in the future. Precision methods required to meet Government specifications will be used in the manufacture of improved oil field products after the war is won.

But don't forget for a moment that we are also helping the oil producer do his war job by furnishing plenty of Texasteel Sucker Rods, Pull Rods and Polished Rods—available promptly from our centrally located factory.

TEXASTEEL MANUFACTURING CO.

Houston, 217 West Bldg., Phone Charter 4-3301 • Kilgore, P. O. Box 918, Phone 724 • Wichita Falls, P. O. Box 673, Phone 2-0303

FORT WORTH, TEXAS

Manufacturers of Dependable Oil Field Pumping Equipment

FREE ENTERPRISE IS THE
ONLY WAY TO CONSTANTLY
HIGHER AMERICAN LIVING
★ ★ ★ STANDARDS ★ ★ ★

THE OHIO STEEL

Putting the final "T" in T. N. T.

Note the size of this big Reactor Fitting used for making one of the components of T. N. T. It is an alloy casting which is completely machined and tested before leaving the plants of the Ohio Steel Foundry Company. It is used at high pressures and high temperatures. It has the build and the brawn to do a very tough job—and it does this job well.

FOUNDRY CO. LIMA & SPRINGFIELD, OHIO

ENGINEERS • FOUNDERS • MACHINISTS

YOU wouldn't call a doctor to cure your leaky roof

—naturally you wouldn't be so silly! A doctor would probably advise you to give the poor house a pill and put it to bed.

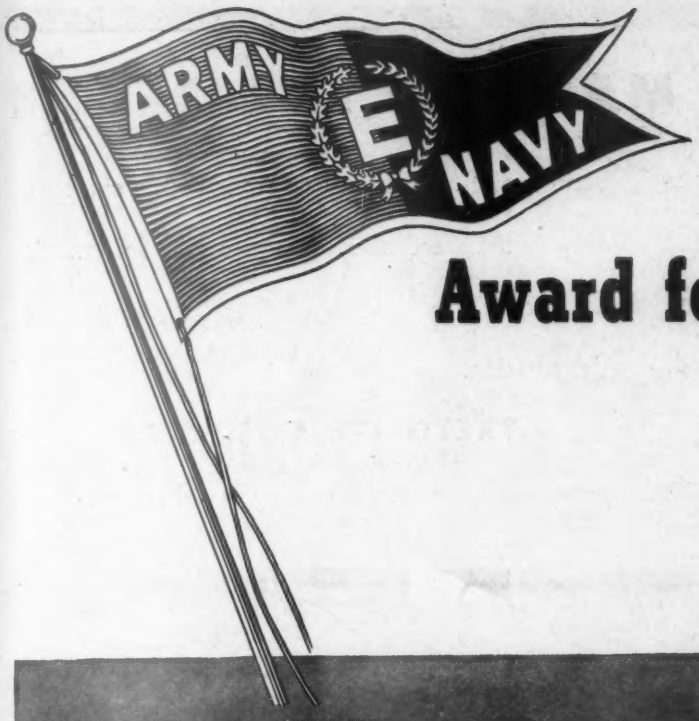
And—we hope you won't do anything so ridiculous when you buy OPEN STEEL FLOORS—we hope you'll specify and buy only GENUINE Open Steel *GRATING* Floors. They're factory fabricated for the specific job—tailor-made to fit the individual need thus eliminating expensive field welding, cutting and extra reinforcing.

Open Steel Floors need support only on two sides—do not need welding every few inches or elaborate frames. Wartime exigencies and shortages haven't changed their engineering. It was already reduced to the simplest formula and best practices.

For the best Open Steel Floor, for economy and safety, specify Open Steel Floor *GRATING* made by members of this Institute. You'll find no tendency on their part to discard standard engineering practices—skimp on specifications as a wartime measure or economy.

Write today for a guide to specifications and standard practices to the OPEN STEEL FLOORING INSTITUTE, First National Bank Bldg., Pittsburgh, Pennsylvania.

OPEN STEEL FLOORING INSTITUTE, INC.



Award for silence

MAXIM

Silence, on the face of it, may seem a strange weapon of war . . . yet every day and every night at sea our ships "come through" because their position is not detected. For many this "positive protection" is due to Maxim Silencers which deaden engine noise to a whisper and trap all tell-tale sparks and embers.

For turning out this vital silencing equipment in ever increasing quantities, Maxim employees have earned the Army-Navy Production Award. Proud of this recognition, they are determined to better the record that earned it for them. The Maxim Silencer Co., 99 Homestead Ave., Hartford, Conn.

Maxim Waste Heat Units combine silencing, spark arresting and the utilization of waste exhaust heat to produce steam or hot water. Write for Bulletin WH-100.

ASK THE MAN ON THE LEASE

He *knows* the importance of efficiency in dehydration because emulsion treating is a practical part of his job. He knows whether the "service" rendered is genuine, or merely salesmanship. For a good, down-to-earth opinion on the emulsion treating problem, ask the man on the lease. Tret-O-lite's long list of satisfied customers is ample evidence that, in the great majority of cases, the field man's answer will be . . . "Tret-O-lite," for the best in dehydration.

TRETOLITE COMPANY

Manufacturing Chemists

WEBSTER GROVES, ST. LOUIS COUNTY, MO. • LOS ANGELES, CALIF.

Complete Service for Every Field

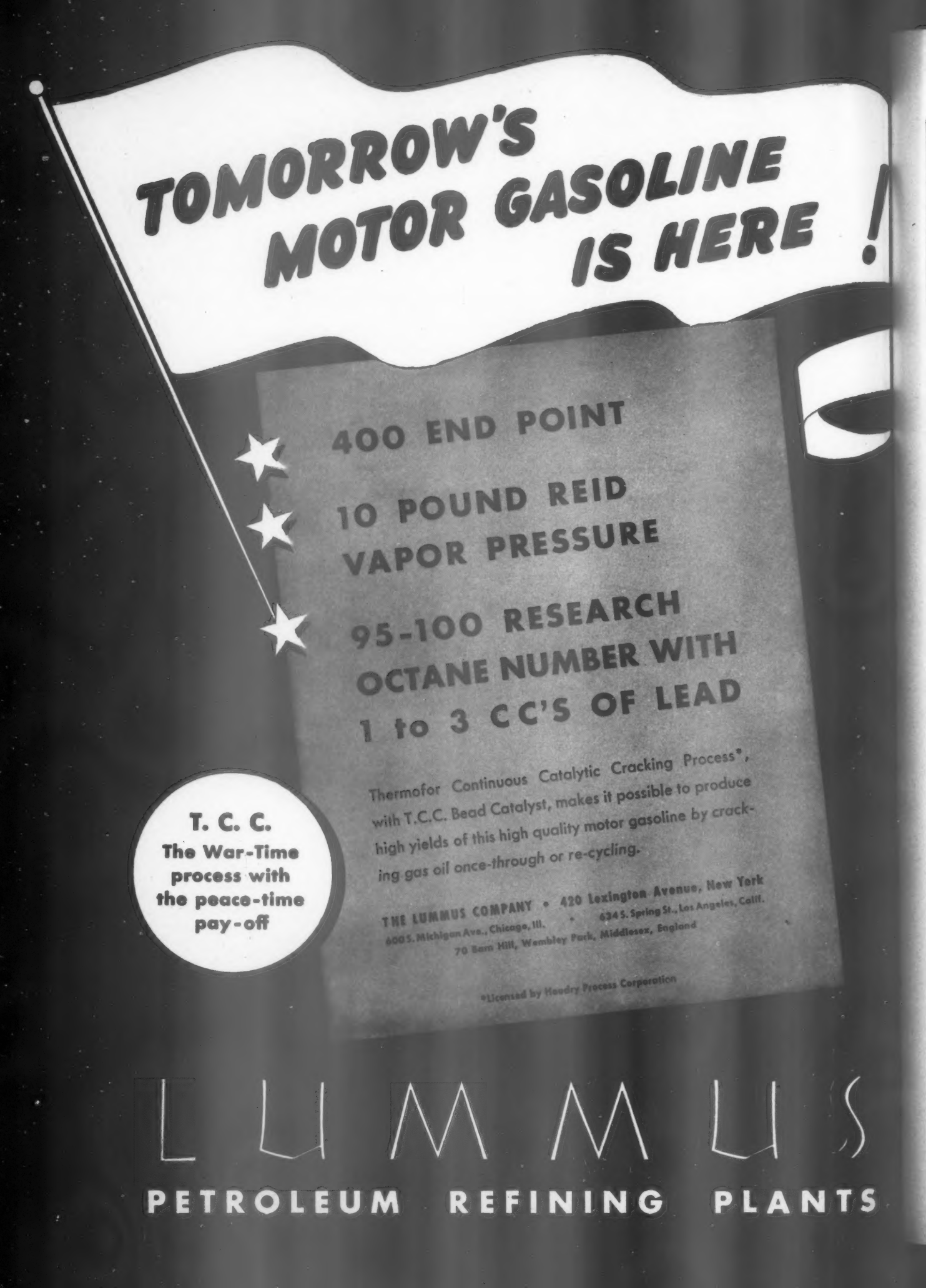
Oil is Ammunition • Treat it Right

Tret-O-lite

REG. U. S. PAT. OFF.

DEHYDRATING • DESALTING

FOR THE CAR OF TOMORROW
95-100 OCTANE
MOTOR GASOLINE
with less than 3 cc's
of lead


TOMORROW'S MOTOR GASOLINE IS HERE !
400 END POINT
10 POUND REID VAPOR PRESSURE
95-100 RESEARCH OCTANE NUMBER WITH 1 to 3 CC'S OF LEAD
Thermofor Continuous Catalytic Cracking Process*, with T.C.C. Bead Catalyst, makes it possible to produce high yields of this high quality motor gasoline by cracking gas oil once-through or re-cycling.
THE LUMMUS COMPANY • 420 Lexington Avenue, New York
6005. Michigan Ave., Chicago, Ill. • 6345. Spring St., Los Angeles, Calif.
70 Barn Hill, Wembley Park, Middlesex, England
*Licensed by Houdry Process Corporation
T. C. C.
The War-Time process with the peace-time pay-off
LUMMUS
PETROLEUM REFINING PLANTS

Why worry about special fastenings where standards would do as well?

If you are having trouble getting the bolts, nuts or other fastenings of special type or size, or of special-analysis steel, that you have been using, the following suggestions may prove helpful.

Perhaps you can use a standard-sized bolt or nut that's more readily available, and which will do the job just as well as a particular "special" you have been using.

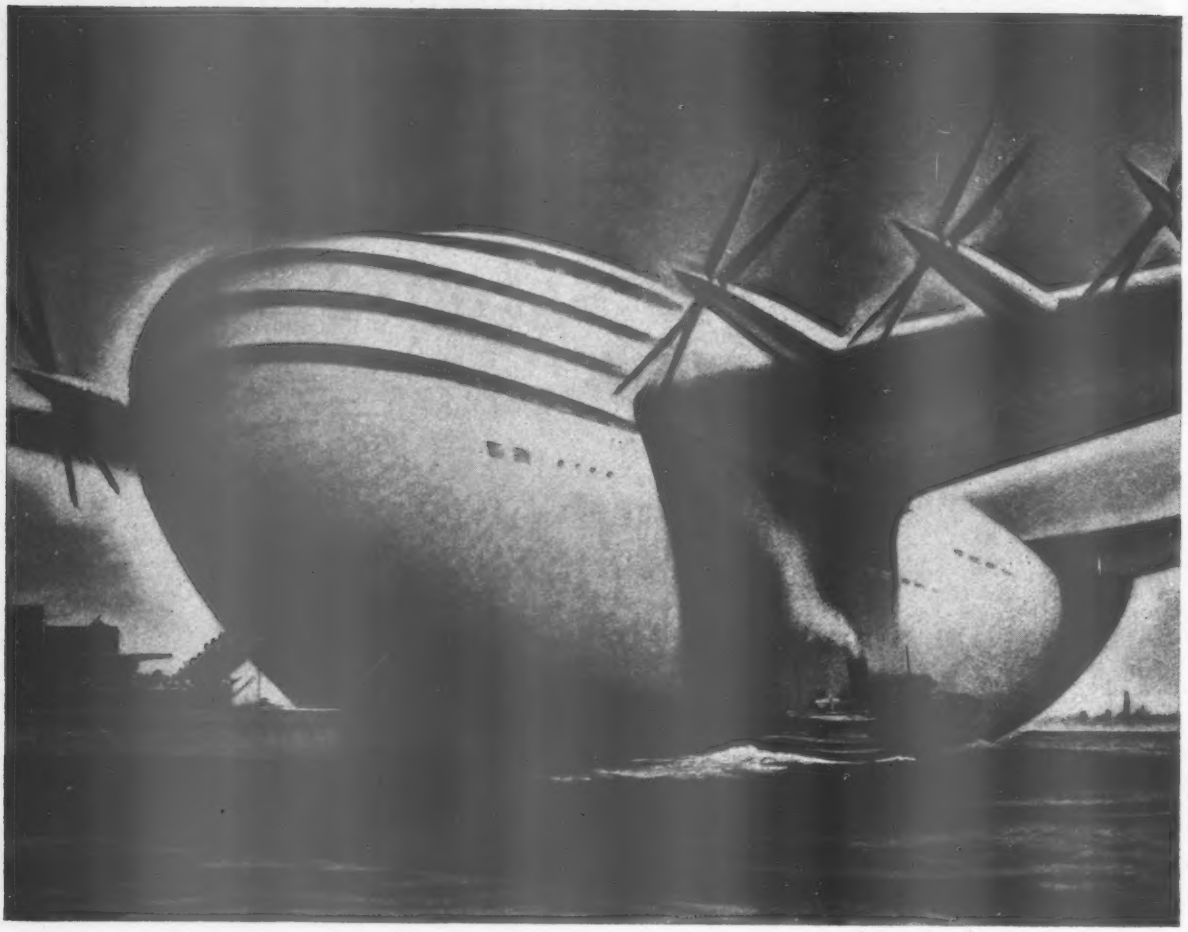
Perhaps you can use an easier-to-get, heat-treated carbon-steel fastening in place of one made of a critical alloy.

Or perhaps there's a standard bolt or nut that will fill your needs virtually as well as one that would ordinarily have to be specially manufactured.

Simply because the original specifications of your equipment may call for fastenings of a particular type as replacements does not necessarily mean that, from the thousands of sizes and types of fastenings available, you cannot find a substitute, that will do the job equally well and be far easier to obtain.

Substitution of a "standard" for a "special" fastening usually means both time and money saved. Besides, whenever you shift from a "special" to a "standard" you are helping to conserve critical alloys or to release machinery for other vital war work, or both. It's worth looking into. Bethlehem is ready to help you. Call your local Bethlehem representative, or write to Bethlehem Steel Company, Bethlehem, Pa.

BETHLEHEM STEEL



Tomorrow . . . wait and see!

WE KNOW NOW there is no real physical limit to the carrying capacity of the airplane. Two-hundred ton planes are actually on the drawing boards. Far bigger ones are taking definite form in the minds of aeronautical engineers, whose designs are no longer confined to pigmy proportions by fuel limitations.

Houdry scientists have contributed mightily to this freeing of creative imaginations. They have developed a revolutionary new catalytic refining process which can produce a *super* aviation fuel, incomparably better than any now being made anywhere in the world. So vastly superior that aircraft engines of current design cannot fully use its capabilities.

But when this new *super* fuel flies the plane of the future, its incredible power-producing qualities will tremendously increase lift and load carrying capacity, improve maneuverability and speed. Shorter take-offs and landings will make practicable the operation of super-size aircraft.

Thus this latest Houdry development may well influence the future of flight as profoundly as earlier Houdry developments have affected the past. In this war, more than 90% of *all* the catalytically cracked gasoline produced for the United Nations has been made by Houdry processes!

Houdry Catalytic Processes and the Thermofor Catalytic Cracking Process are available to all American refiners, under license arrangements, subject to approval by the United States Government.

HOUDRY CATALYTIC PROCESSES ... FOR VICTORY IN WAR ... FOR PROGRESS IN PEACE

HOUDRY PROCESS CORPORATION, WILMINGTON, DELAWARE

Licensing Agents:—

E. B. BADGER & SONS CO. Boston, Massachusetts • BECHTEL-McCONE-PARSONS CORP. Los Angeles, California • THE LUMMUS COMPANY New York City, New York

What would it cost NOT to have ARMSTRONG STEAM TRAPS

PLANTS not equipped with Armstrong Steam Trapping may be experiencing losses far out of proportion to the cost of the traps, such as:

PRODUCTION LOSSES: A number of surveys showed an average of 40% faster heating on steam equipment after Armstrong traps were installed.

EXCESS FUEL: Example — a chemical plant saved $25.00 a day in fuel costs by installing 17 Armstrong traps.

EXCESSIVE MAINTENANCE: 32 Armstrong traps installed on a dryer cut maintenance time from 20 man days a month to one man-day a month on the equipment.

In addition, many plants have found it possible to get along with fewer boilers after changing over to Armstrong traps.

These all add up to the fact that no refiner can afford to be without trapping that insures efficient removal of air and condensate with negligible attention. Get rid of your trapping headaches . . . write for the Armstrong Trap Book, or get in touch with your local Armstrong Representative.

Armstrong steam traps on heat exchangers in polymerization plant.

ARMSTRONG MACHINE WORKS
868 Maple Street
Three Rivers • Michigan

ARMSTRONG
Inverted Bucket
STEAM TRAPS

ELL BOLT
CONSTRUCTION
a feature of the Patented
VOGT HEAT EXCHANGER
Floating Tube Sheet Assembly

Patent Nos.
1,895,735
2,232,478

Assures
NO LEAKS HERE

YOU LOSE when an exchanger leaks . . . . with the possibility of fluid contamination, or shut down for repairs.

None of these evils need plague you when you employ the Vogt patented floating tube sheet assembly because there is no distortion of a split ring to worry about in making up the joint time after time. Its easy to make tight and it stays tight!

Critical materials are saved too because the design makes possible a smaller diameter of shell through reduction of the dead space between the shell and the tube bundle.

Our new bulletin HE-5 is a pictorial presentation of standard and special types of Vogt Heat Exchangers. Write for a copy on your letter head.

Saves
FLUID CONTAMINATION
•
FREQUENT SHUTDOWNS
•
CRITICAL MATERIALS

BUY WAR BONDS

HENRY VOGT MACHINE COMPANY
Incorporated
LOUISVILLE 10, KENTUCKY
Branch Offices: New York, Philadelphia, Cleveland, Chicago, Dallas.

Vogt *Heat Transfer* EQUIPMENT

HANLON-WATERS Announces

an OUTSTANDING DEVELOPMENT

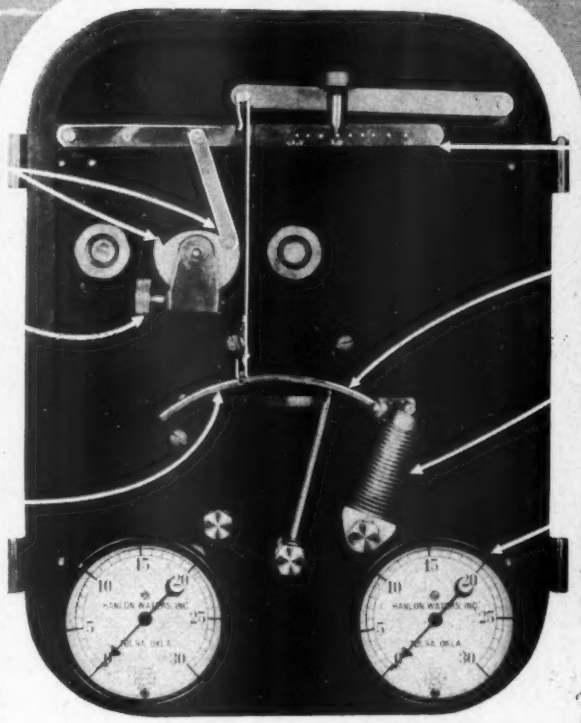
IN Level Control Pilots

for

- REFINING
- CHEMICAL
- SYNTHETIC
- GASOLINE
- RECYCLING

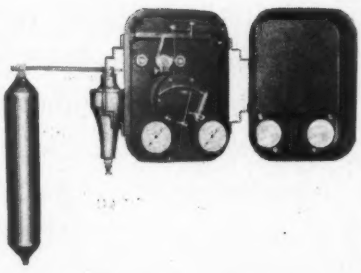
and

- POWER INDUSTRIES

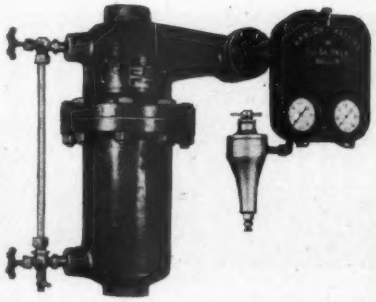


- Simplified-Reversibility
- Adjustment for height of Level Control.
- "Snap Action" settings on Pilot without use of any additional parts or special tools.
- Specific gravity index scale setting from .10 to 2.0.
- WIDE THROTTLING RANGE adjustment from Zero to 300% —setting in exact relation to specific gravity setting.
- Long life bellows, operating throttle arm.
- Straight line pilot characteristic of pressure output to diaphragm vs. level variation.

no THE LEVEL CONTROLLER WITH STUFFING BOX . . . . . LEAKAGE . . . . . FRICTION



- Wide swinging door — easy accessibility of all parts.
- Mountable on any H-W Type 850 Displacement Level Control.



- Equipped with the popular H-W Type 245 Supply Medium Regulator.

H-W New Type 1410 Level Control Pilot is especially designed to meet requirements for a Level Control Pilot having a VERY WIDE "Throttling Range" —EXACT in its relation to the specific gravity of the liquids handled in the system. Important for indicating or recording level service where the displacement float is used to indicate position of level in vessels where highly corrosive liquids make continuous use of gauge glasses impossible.

Features of the Type 1410 Level Control assure performance matching other H-W Control Equipment that are—

STANDARD FOR *Performance*

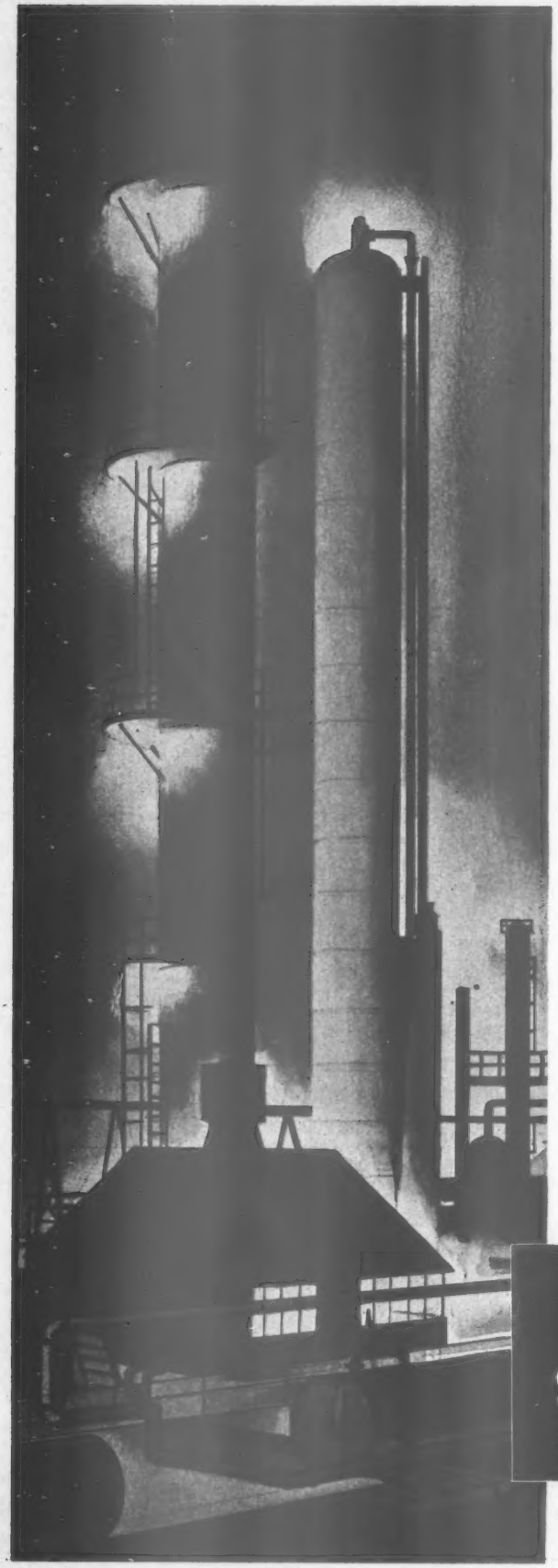
HANLON-WATERS INC. H-W

Hanlon-Waters, Inc.

TULSA, OKLAHOMA

Information on all HANLON-WATERS Equipment is available at representative nearest you.

NEW YORK, CHICAGO, PITTSBURGH, PHILADELPHIA, ST. LOUIS, DENVER, LOS ANGELES, SHREVEPORT, LA., FORT WORTH, HOUSTON, CORPUS CHRISTI, and ODESSA, TEXAS



Deliveries on Schedule

Towers, tanks, pressure vessels, re-boilers, autoclaves, agitators, absorbers, coolers, receivers. Check these over. They are representative of the equipment Standard Steel is supplying to the petroleum industry . . . in *quantity* and *on time*. Our staff of engineers and designers readily interpret your needs. Master Craftsmen in the plant turn plans into realities.

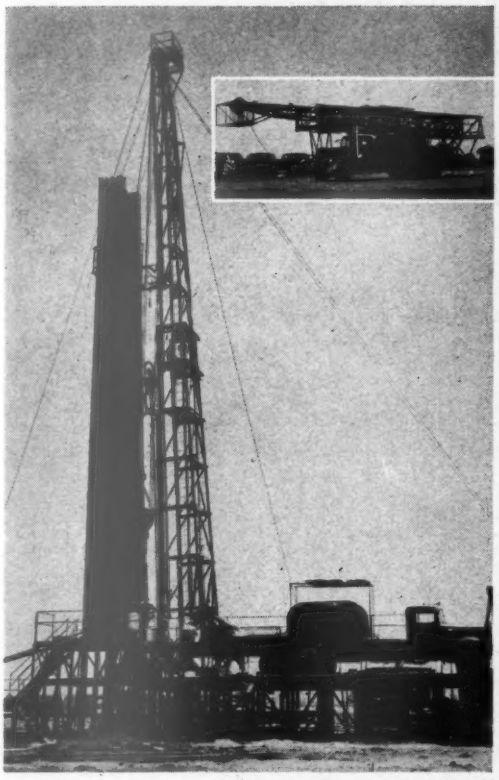
Though devoted to the war effort twenty-four hours a day, added plant capacity affords an opportunity to bid on additional work. A Standard Steel engineer can help with *your* production problem. *Write today for detailed information on Standard's service to the Oil Industry.*

STANDARD
STEEL CORPORATION

General Offices and Plant: 5001 South Boyle Avenue
Los Angeles 11, California

"Sound Engineering—Proved Performance"

COMBINATION DRILLING RIG AND SERVICING UNIT PROVES SUCCESS



7900′ of 2½" tubing racked in the Franks' Model 7000 D.D. "Self-Propelled" Telescoper at Riverdale, California. Sub structure is used only where blow-out preventer is above ground.

Insert shows Franks' Model 7000 D.D. "Self-Propelled" Telescoper in "Over-the-Road" position. The hoist and derrick are mounted on a specially built Kenworth Truck. Hoist and truck are powered by a single HBS-600 200 H.P. Cummins Diesel Engine. Blocks and lines are carried strung at all times.

Raising the 200,000-lb. capacity 90′ telescoping derrick by means of a power-driven screw mechanism, located beneath the hoist and bed.

Actual raising, extending and locking time is less than 10 minutes.

Franks Develops A Double Duty Unit Mounted on Wheels

The first combination 100 percent portable rotary drilling rig and servicing unit is now on the job operating at Riverdale, California.

This unit, made by the Franks Manufacturing Corporation of Tulsa, Oklahoma, contains every essential for either servicing or drilling mounted on a single truck, except the pumps.

SAVES COST OF PERMANENT DERRICK

All of the savings operators have found the world over in Franks portable rotary drilling rigs and telescoping derrick servicing units are found in this double duty combination machine, which even further increases the economies which Franks' pioneering has brought to the petroleum industry.

1. The unit eliminates the cost of permanent derricks since it carries its own. It will service up to 100 wells, eliminating that many derricks per unit.
2. It saves rig-up and tear-down time, since all parts are integrally mounted on wheels and require no assembly or disassembly, except the pumps when drilling.
3. It is 100% portable and is self-propelled, permitting the moving of the derrick as a part of the unit.
4. Carries lines and blocks strung at all times even when moving from location to location.
5. Open-face tilted design derrick permits greater block clearance with more room around the well head or rotary table.
6. Portable derrick can be left standing full of tubing in the field while hoist is used under a standard derrick or with other equipment.
7. Double duty. May be used either as a servicing machine for the deepest wells, or for rotary drilling by the use of the rotary drilling attachment.

A 90-foot (when extended) telescoping derrick (58-foot when telescoped); drawworks, power plant, rotary table, crown block, stacking board and all essentials are an integral part of the unit. The pumps are skid mounted and can be carried on an auxiliary truck, when needed for drilling operations.

The unit will service wells up to 10,000 feet and handle shallow and medium depth standard drilling and deep "slim-hole" and exploratory drilling. It also is used for deepening and cleanout work.

The derrick is Franks tested and proven telescoping type, which permits ample clearance and it is equipped for handling rods and racking tubing or drill pipe.

Move-in and rig-up time for servicing jobs is usually less than 45 minutes, while actual erection time of the derrick requires less than 10 minutes. The complete machine, including the derrick, travels over the road with the blocks and lines strung.

When the unit is used for drilling or deepening purposes a skid mounted separate pump is used as well as a portable mud tank.

The Franks propeller-shaft driven rotary table is driven by the truck motor thru Franks patented power take-off. The truck motor is also used for the drawworks.

A rear-end rotary catshaft is furnished, driven through a bevel gear split-shaft gear box. It is equipped with both automatic and regular catheads located immediately behind the derrick legs.

The bureau forecast prepared under the supervision of A. ... chief, Petroleum ... Economics ... speculat... increase... tankers.

"La... ucts... Coa... ab... do... C... re... con...

"Gasoline production," the bureau ... not kept pace with the ... demand and heavy ... gasoline stocks ... astrict... of ... dod... ...mpared ... bl. in ... ...d ... ...

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...When the present ... ...nounced ... ...

...from the Gulf it would ... ...t. An ... ...ery operations in the East ... increase in the movement of products, particularly fuel oils, from ... July 3 were ... 3,966,000 bbl., respec... ...ing this period stocks of domestic crude oil declined 138,000 bbl. daily, indicating a demand for

FRANKS MFG. CORP.
WELL SERVICING AND DRILLING UNITS
Tulsa, U. S. A.

(Advertisement)

NICKEL AIDS THE FARM IMPLEMENT INDUSTRY

to KEEP 'EM SERVING!

America won a victory on the food front in 1942 with production that reached an all-time high. But even that wasn't enough to feed a hungry, war-torn world. So this year's objectives are higher.

Farmers need mechanical equipment to produce food in winning quantities. Now, with the critical shortage of skilled farm labor, modern machinery becomes vitally important.

Agricultural equipment engineers have steadily improved farm machinery, lowered costs, and educated users. Result: no nation's farms were ever so fully mechanized as ours. And repair and service facilities have kept pace so farm equipment keeps working without excessive breakdowns or delays.

The foresight of these engineers is shown by their repeated specification of materials strengthened and toughened with Nickel. Their experience proves that a little Nickel goes a long way in the manufacture of parts that stay on the job . . . stressed parts that stand shock overloads.

From tractor transmissions to plow discs, from cylinder liners to bull gears, Nickel teams up with other metals to assure the dependable performance of farm implement parts.

For years, the technical staff of International Nickel has been privileged to cooperate with the engineers and production men who are responsible for such great achievement in the improvement of farm equipment . . . equipment now working at top speed to feed the United Nations. INCO's staff of engineers and metallurgists offers counsel and data to all who seek assistance in the selection, fabrication and heat treatment of ferrous and non-ferrous metals.

New Catalog Index

New Catalog C makes it easy for you to get Nickel literature. It gives you capsule synopses of booklets and bulletins on a wide variety of subjects—from industrial applications to metallurgical data and working instructions. Why not send for your copy of Catalog C today?

★ *Nickel* ★

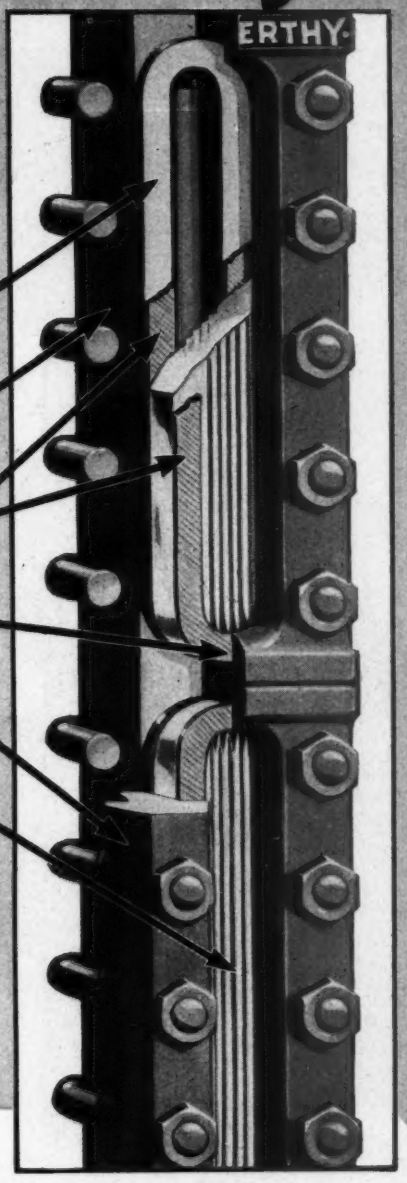
THE INTERNATIONAL NICKEL COMPANY, INC., *67 Wall St., New York 5, N. Y.*

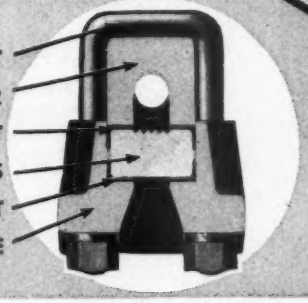
Points of Superiority

PENBERTHY

DROP-FORGED STEEL *Reflex* LIQUID LEVEL GAGES

- **GASKET GLAND** machined integral with liquid chamber fits snugly into glass chamber of frame preventing gasket blow-out.
- **LIQUID CHAMBER** alloy temperature resisting steel, heat treated, accurately machined and ground. Multiple section made in one piece.
- **GASKETS** are interchangeable and provide adequate and equal resilience on both sides of glass.
- **GLASS CHAMBER** in frame machined to contour of glass providing full metal backing for gaskets.
- **FRAME** drop-forged alloy temperature resisting steel with extra heavy beam at each end.
- **PYREX GLASS** has proved its greater strength and resistance to thermal shock and erosion.





These Penberthy Drop-Forged Steel Reflex Liquid Level Gages are recommended for pressures up to 3000 lbs. per sq. in. at 100° F. and 1000 lbs. at 1000° F. They are provided in whatever lengths required and for various kinds of liquids. We shall be glad to quote upon your requirements.

Write for New Catalog No. 34-A

EMPTY SPACE SHOWS
WHITE
•
LIQUID SHOWS
BLACK

PENBERTHY INJECTOR COMPANY
Manufacturers of QUALITY PRODUCTS *Since 1886*
DETROIT, MICHIGAN • *Canadian Plant, Windsor, Ont.*

Now More Than Ever, You Need

MORE FOR YOUR MONEY

In Tubing Heads

Here, definitely, is the best buy in the low price tubing head field. Today, when maximum returns must be had from every pound of steel, operators are profiting from the many advantages Larkin offers in this Forged Steel 4500-pound test Type SR head.

The Neoprene Stripper and Forged body provide a safe, leak proof head for every service for entire life of the well:

1. Acts as a blow-out preventer while running or pulling tubing
2. Consistent for:
   - Flowing through it for flush life of well
   - Pumping through it after converting from flow type
   - Acidizing through it
3. Parts all interchangeable from 4½" to 7" casing
4. Equally efficient for 2" or 2½" tubing, regular or upset

All parts are accurately machined from quality materials. Years of satisfactory performance unquestionably prove its value. Yes, no other tubing head with all its advantages can be had for a comparable price. Available from dealer stocks for immediate shipment.

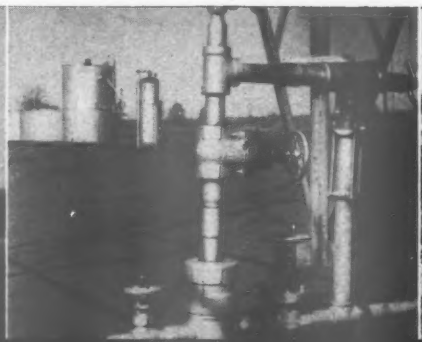
LARKIN

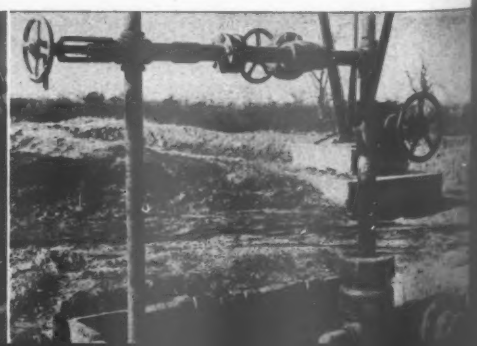
LARKIN PACKER COMPANY, INC.

SAINT LOUIS, MO.

WAREHOUSES: Houston, Corpus Christi, Odessa, Shreveport, Tulsa, Great Bend, Salem. EXPORT: 74 Trinity Place, New York City.

Get full details on this head from your Composite Catalog . . . or, write Larkin for a reprint of our 24-page section.





AQUAGEL CEMENT MAKES LIGHT-WEIGHT SLURRIES FOR CRITICAL CASING JOBS

Cementing casing in difficult lost circulation zones (such as depleted oil sands) sometimes requires a light-weight, gel-type slurry; and only AQUAGEL Cement has these characteristics. Where heavier cements would force themselves into the formation and be wasted, AQUAGEL Cement, lighter by as many as 20 pounds per cubic foot because of its higher water-cement ratio, may accomplish the job without trouble. If the formation is incompetent to retain even light-weight AQUAGEL Cement, loss of slurry is kept at a minimum by its gel characteristics which cause it to pile up and block rather than flow away into crevices.

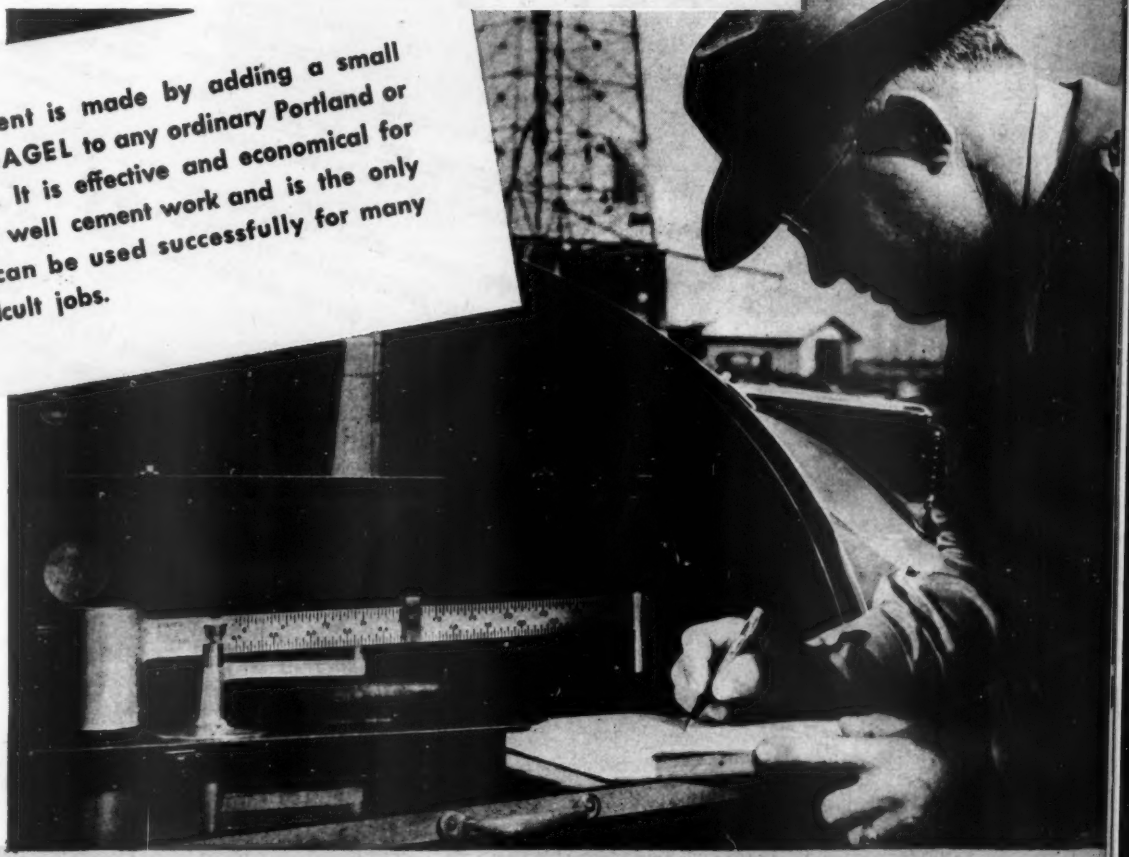
Patent Licenses, unrestricted as to sources of supply of materials, but on royalty bases, will be granted to responsible oil companies and operators to practice the inventions of any and/or all of United States Patents Nos. 1,807,082; 1,991,637; 2,041,086; 2,044,758; 2,064,936; 2,094,316; 2,119,829; 2,214,366; 2,294,877; 2,304,256 and further improvements thereof. Applications for Licenses should be made to Los Angeles office.

BAROID SALES DIVISION

NATIONAL LEAD COMPANY

BAROID SALES OFFICES: LOS ANGELES • TULSA • HOUSTON

AQUAGEL Cement is made by adding a small amount of AQUAGEL to any ordinary Portland or oil well cement. It is effective and economical for all ordinary oil well cement work and is the only material that can be used successfully for many extremely difficult jobs.



oid Service Engineer
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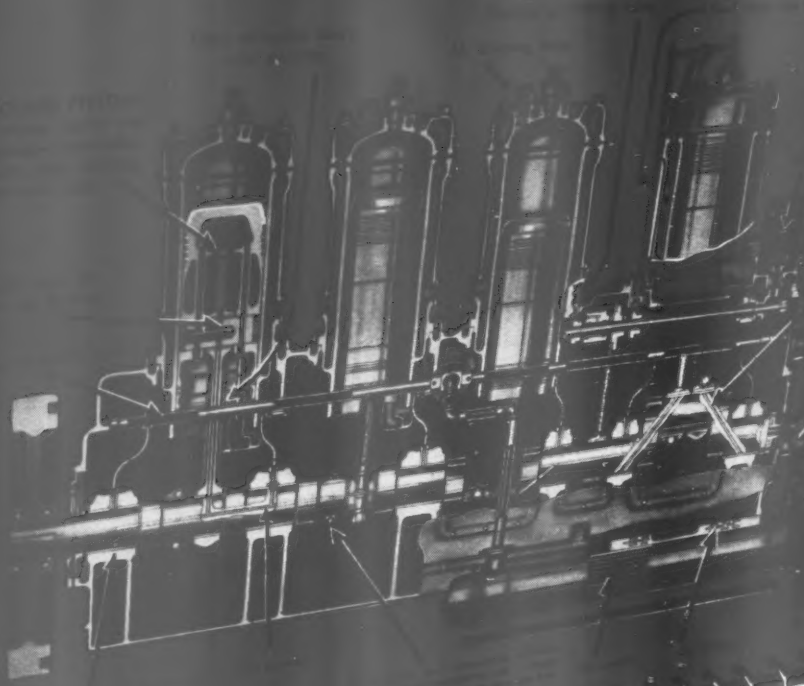
h Baroid Mud Balance.

BAROID PRODUCTS: BAROID and COLOX • AQUAGEL • FIBROTEX • BAROCO • STABILITE • AQUAGEL-CEMENT
MENTOX • ZEOGEL • IMPERMEX • MICATEX • TESTING EQUIPMENT • BAROID WELL LOGGING SERVICE



2-CYCLE uses LESS OIL!

Plant records prove that the 2-cycle engine uses far less lubricating oil than the 4-cycle. Not only does it eliminate the extra "charging" stroke of the piston (which must be lubricated)—but in the 2-cycle engine, leakage past piston rings goes out the exhaust port, instead of entering the crankcase to dilute and foul the lubricating oil.

Many Clark "Angles" operate without changing the crankcase oil for over a year due to freedom of the oil from any tendency to "varnish". Check with Clark users . . . . . they will advise that bearing troubles practically cease.

The CLARK 2-cycle also offers greater fuel economy, less wear smoother operation, fewer man hours, simpler construction, lower installation cost. Investigate.

CLARK BROS. CO., INC. . . . OLEAN, NEW YORK, U.S.A.
Export Office: 30 Rockefeller Plaza, New York.
Domestic Sales Offices and Warehouses: Tulsa, Okla.; Houston, Tex.; Chicago, Ill. (122 S. Michigan Av.); Boston, Mass. (131 Clarendon St.); Huntington Park, Calif. (5715 Bicket St.) Foreign Offices: 72 Tornmill St., E. C. 1, London; Avda Roque Saenz Pena 832, Buenos Aires.

AFFILIATED COMPANIES:
Dresser Mfg. Co., Bradford, Pa.; Pacific Pump Works, Huntington Park, Calif.; Bryant Heater Company, Cleveland, Ohio.

CLARK
Super-2-Cycle

Guts alone won't fly 'em

. . . it takes Oil

Here is the *boy* who went to war . . . the *man* who will come back. What it takes, he's got! Deadly skill . . . cold-as-ice nerve. He flys like a falcon, fights like a demon, gives quarter while asking none.

But his wings will be pinioned and his fighting spirit earthbound . . . without *gasoline* and *oil* to take his plane aloft.

For *mobility* . . . the capacity to move about freely and rapidly in the sky, on the earth, and on and under the water . . . depends today on the *motivating* and *lubricating* powers of oil and gasoline which comes from oil. *All* of the modern vehicles of war and peace are useless as clods without *these* to keep 'em going!

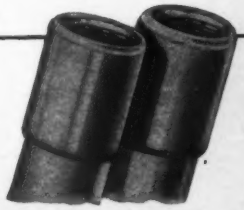
The point should be obvious:

The most basic need of America, next to food, is *oil* and the *mobility* it *transmits* to *all other resources.*

The oil producing industry should be given unqualified first consideration! It must not be limited by shortages of manpower and materials, nor lack of incentives. The vital job of maintaining full production from existing oil fields, and exploring to replenish fast dwindling reserves, dare not be restricted. Unless America keeps its *mobility* . . . it may lose everything else!

MOBILITY **is the Force of America**

...and Mobility depends on **OIL**



PITTSBURGH STEEL COMPANY

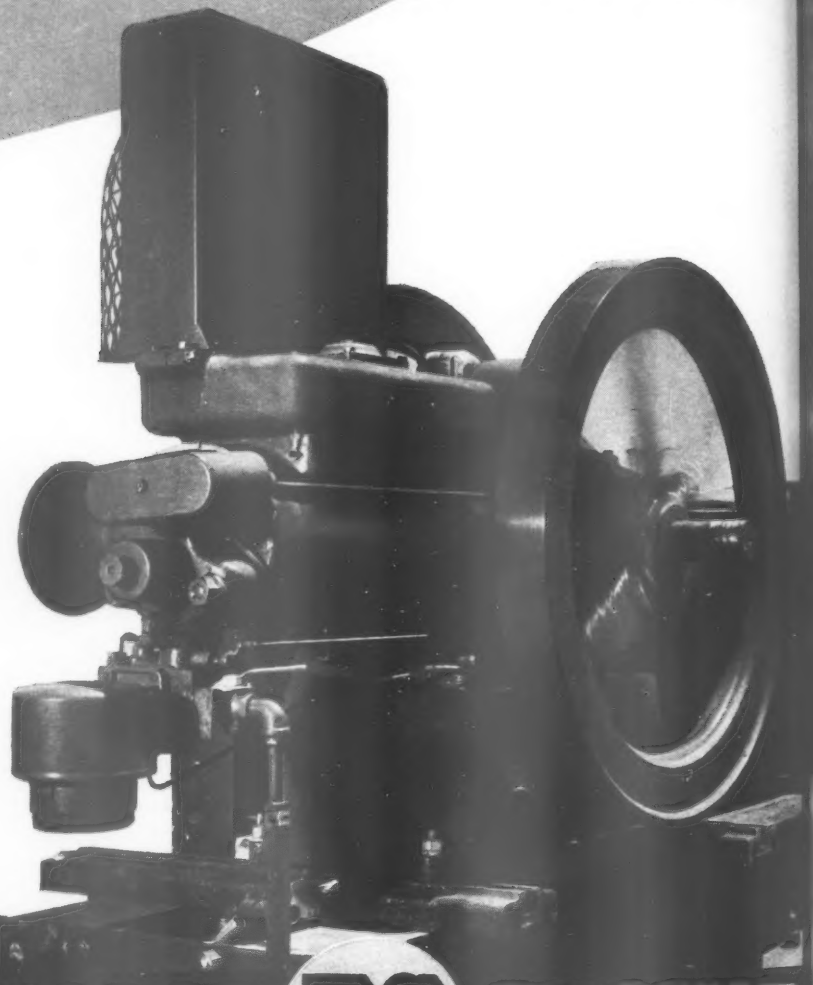
Grant Building (P) Pittsburgh, Pa.

SERVING THE PRODUCING AND REFINING INDUSTRIES WITH DRILL PIPE, CASING, OIL WELL TUBING, REFINERY PIPING

This advertisement published in such magazines as FORTUNE, BUSINESS WEEK, IRON AGE, PURCHASING *and* ARMY ORDNANCE.

WHEN IS AN ENGINE *Worn Out?*

A. When Maintenance Costs Become Excessive



When repair costs on your present engine reach that point where for little more you can buy a Fairbanks-Morse ZC—your engine is worn-out. It's time to get a ZC.

Simplicity itself, the Fairbanks-Morse ZC engine operates with the minimum of attention and normal care. Accessibility of working parts reduces maintenance to a *simple field service job.*

Replace that worn-out engine with a Fairbanks-Morse ZC—no other internal combustion engine has a better record for dependable and economical performance.

●

THE CONTINENTAL SUPPLY COMPANY
General Offices: DALLAS, TEXAS

EXPORT DIVISION
30 Rockefeller Plaza New York City, N. Y.

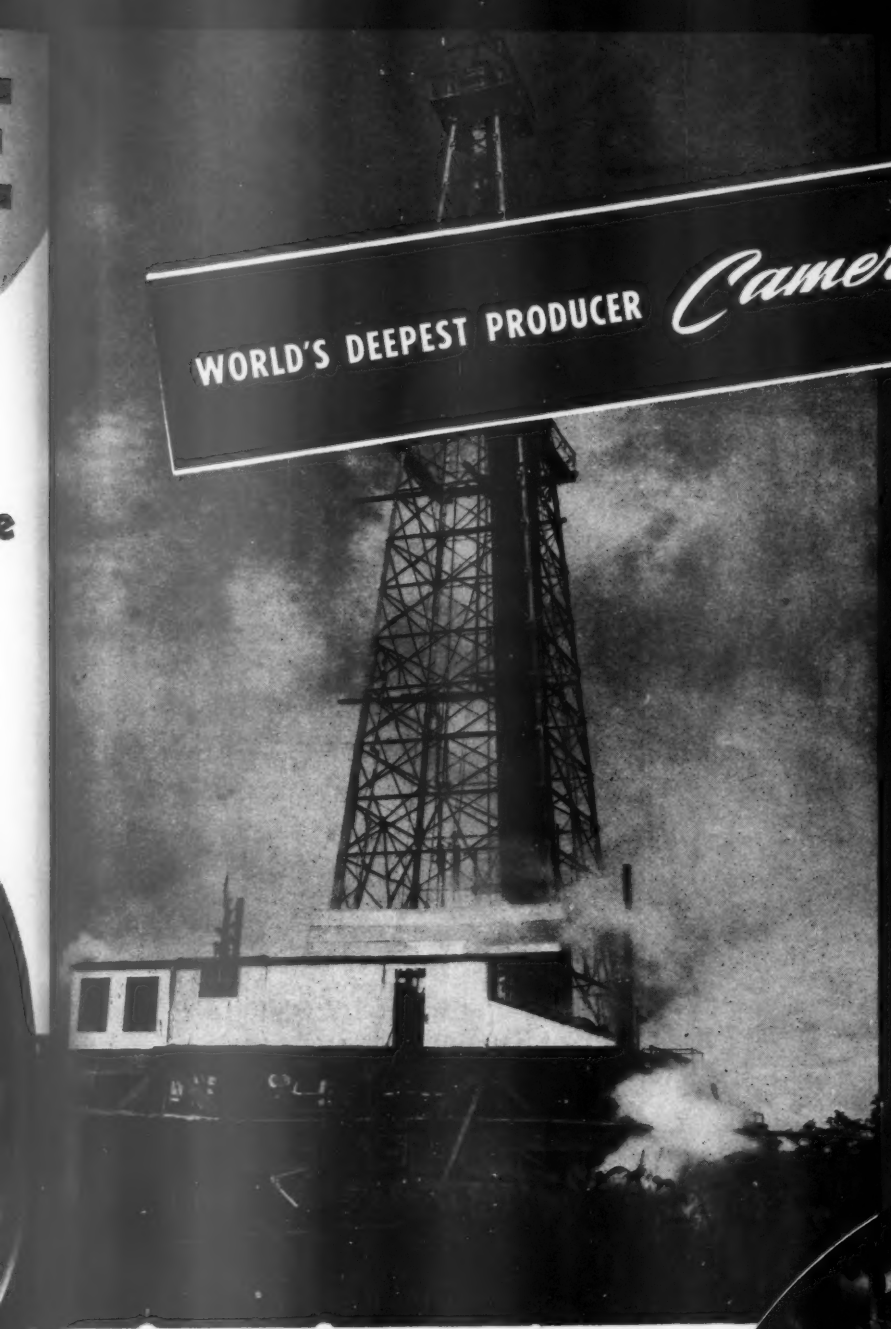
Representatives
MEXICO ARGENTINA ENGLAND TRINIDAD BRAZIL

REPLACE WITH A

FAIRBANKS-MORSE ZC ENGINE

CONTINENTAL

WORLD'S DEEPEST PRODUCER *Cameron-ized!*



WORLD'S DEEPEST OILER COMPLETED ON PELICAN COAST

By Associated Press.

Baton Rouge, June 17.—Oil explorers in the DeLarge field of Terrebone Parish have drilled more than 2½ miles into the earth, to set a new world record for depth of an oil producer.

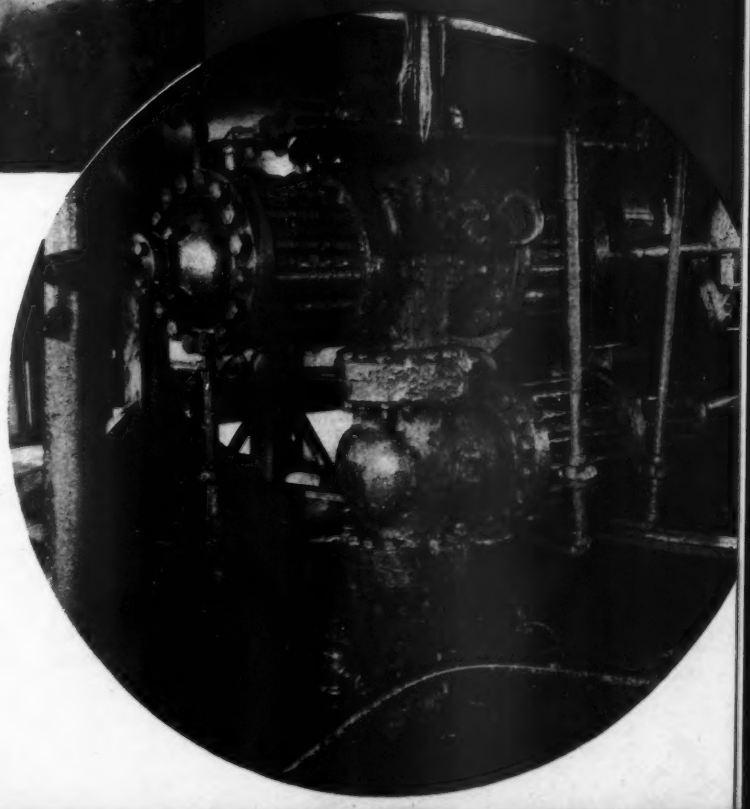
The first world record was set by the South Louisiana field's discovery well, which was completed at 13,265 feet, several years ago, to give Louisiana the deepest producer.

The new well, Union Producing Company's No. 1 Fitzpatrick-Vizzard, was brought in through perforations at 13,457 to 13,490 feet.

It was classed, unofficially, as a gas-distillate well, and a state potential test was awaited.

The No. 1 Fitzpatrick-Vizzard was said to have opened a northeast extension of the field, and maybe a new producing horizon.

Preliminary tests made through a 3/16-inch bottom hole choke and a ¼-inch top hole choke showed



No. 1 Fitzpatrick-Vizzard, DeLarge field, Terrebonne Parish, Louisiana. (Right) Cameron 6000 lb. test drilling control units—Type SDA Pressure-operated Blowout Preventer and Type DV Pressure-operated Gate Valve.

No. 1 Fitzpatrick-Vizzard, drilled jointly by Union Producing Co. and the Fohs group—DeLarge Oil Co., Fohs Oil Co., and Foroy Petroleum, Inc., and recently completed at a depth of 13,457-13,490 feet in the DeLarge field of Terrebonne Parish, Louisiana, is the new depth record holder, exceeding by 225 feet the depth of the previous deepest producing well, Buckley-Bourg No. 1, also located in the DeLarge field.

Drilling to such extreme depth in this semi-marine field, an operation complicated by the marshy terrain and the ever-present high gas pressures, deserves the plaudits of the entire industry.

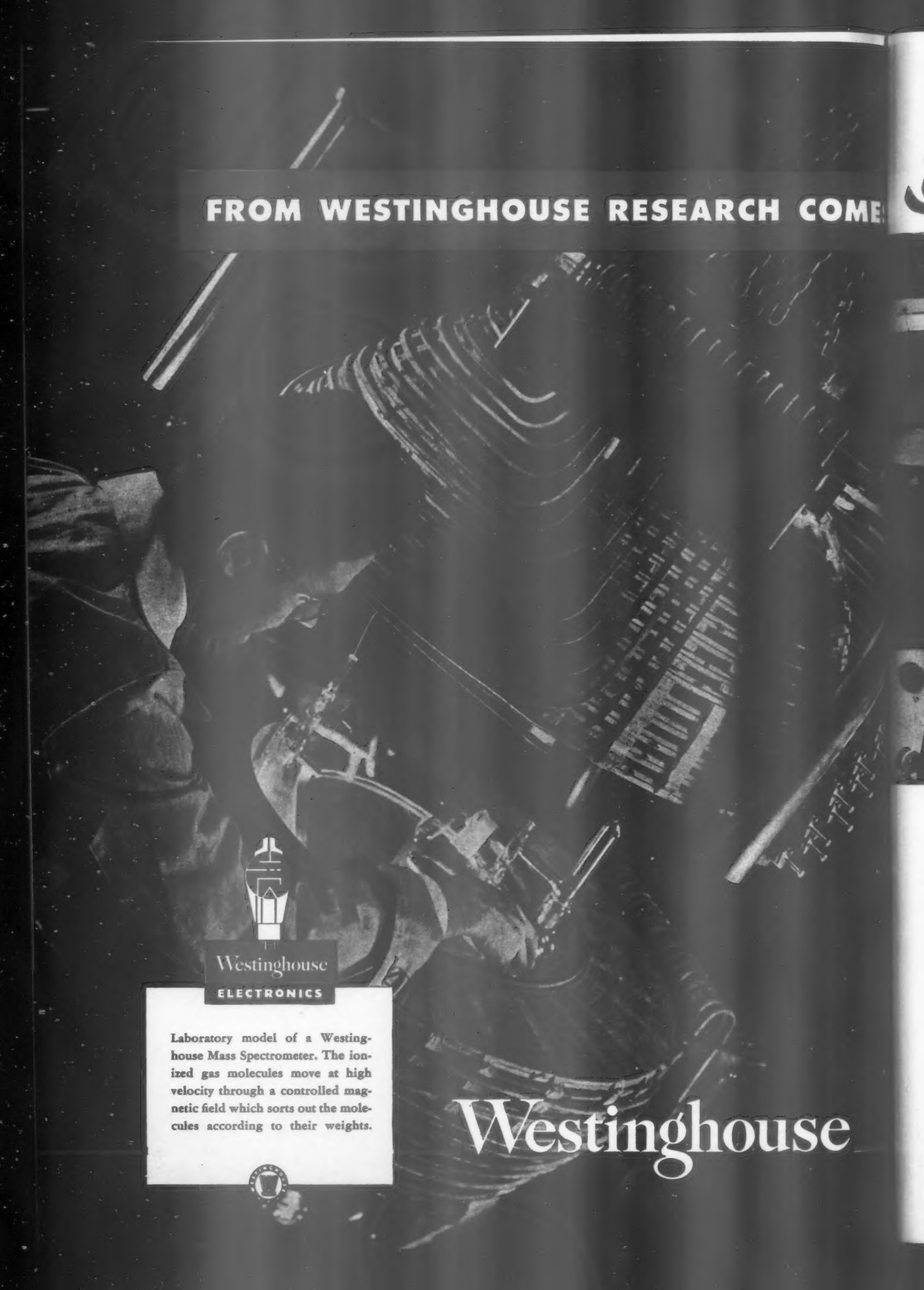
That Cameron Pressure-Operated Drilling Control Units were selected to protect the substantial investment in these unusual wells is testimony to the confidence placed in this equipment by the industry as a whole.

Operators who are planning deep exploratory wells are urged to weigh carefully the numerous exclusive mechanical advantages provided by Cameron Pressure-Operated Drilling Control Units and to bear in mind that no well, equipped with Cameron drilling control units of adequate test pressure, has ever been lost due to failure of the drilling control equipment.

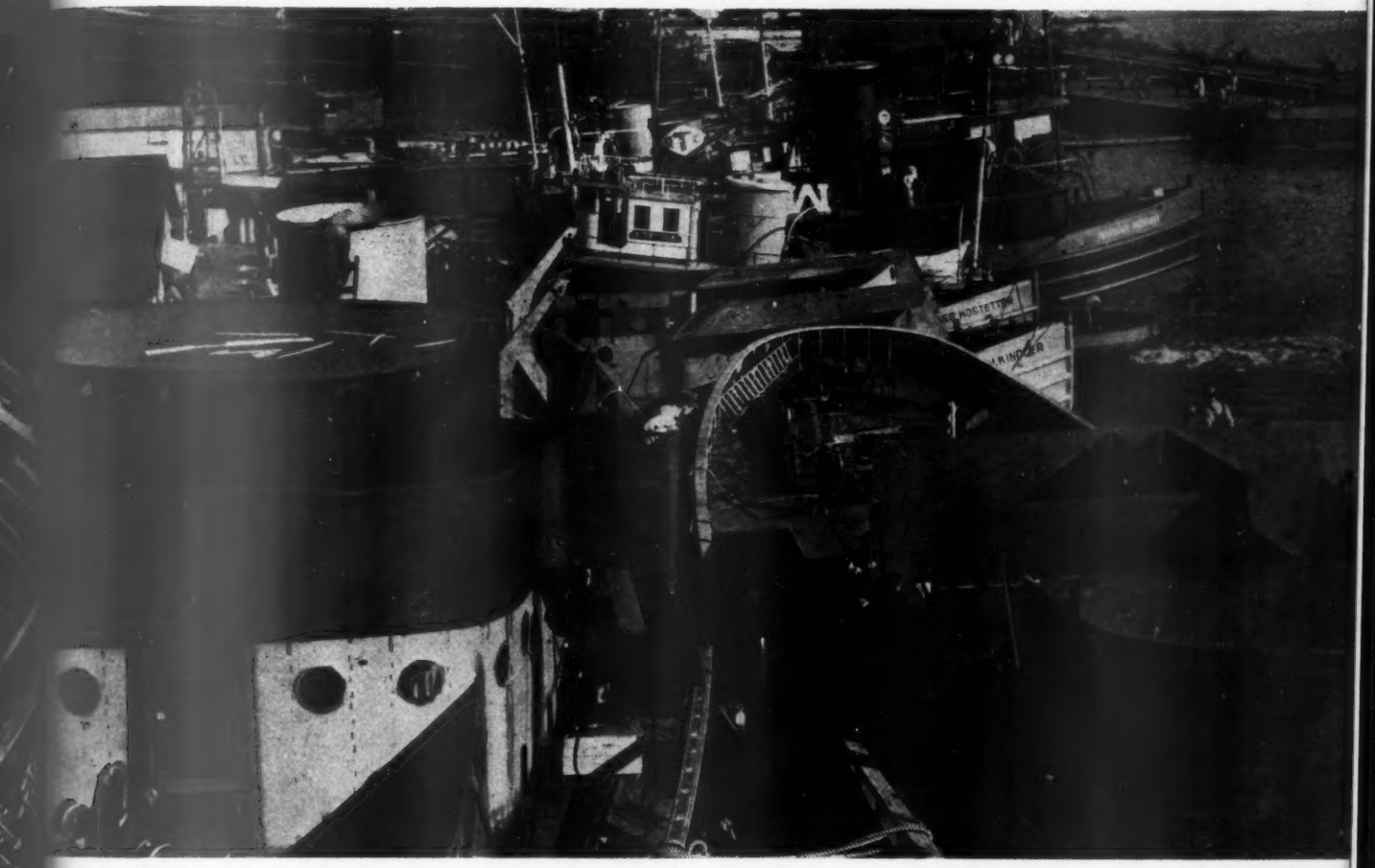
CAMERON IRON WORKS, INC.

711 MILBY ST., HOUSTON, TEXAS

Export—74 Trinity Place, New York, N. Y. *California*—Howard Supply Co., Los Angeles. *Rocky Mountain*—Mountain Sales and Service, Casper, Wyo.


FROM WESTINGHOUSE RESEARCH COME
Westinghouse
ELECTRONICS
Laboratory model of a Westinghouse Mass Spectrometer. The ionized gas molecules move at high velocity through a controlled magnetic field which sorts out the molecules according to their weights.
Westinghouse

Biggest Little Shipyard



It's not how many thousands of employees and how many acres of ways and fabricating shops that determines the size of a shipyard. What counts is the number of vessels delivered.

Last year, Levingston delivered fifty-six vessels, including many rescue tugs for the navy, and fleets of standard service tugs for the army and the navy.

The outbreak of war found Levingston with a small but efficient shipbuilding organization, backed by twenty years of tug and barge "know how." Rapid but careful growth around this nucleus resulted in record-breaking ship production. And the pace of deliveries is being maintained.

★

Levingston's construction and maintenance facilities, now largely devoted to war work, will be available to oil operators contemplating post-war purchases.

Levingston

SHIPBUILDING COMPANY

ORANGE TEXAS

We pump gas to Mexico

Gulf States station delivers 12,000,000 cu. ft. daily, using five 400 horsepower Cooper-Bessemers

IT'S 152 miles as the pipeline runs . . . from this compressor station to the zinc smelter in old Mexico. The delivery is twelve million cubic feet of gas a day to Gulf States Oil Company's good customer, the American Smelting and Refining Company. It's an economical operation because the compressors are modern Cooper-Bessemer G-MV's.

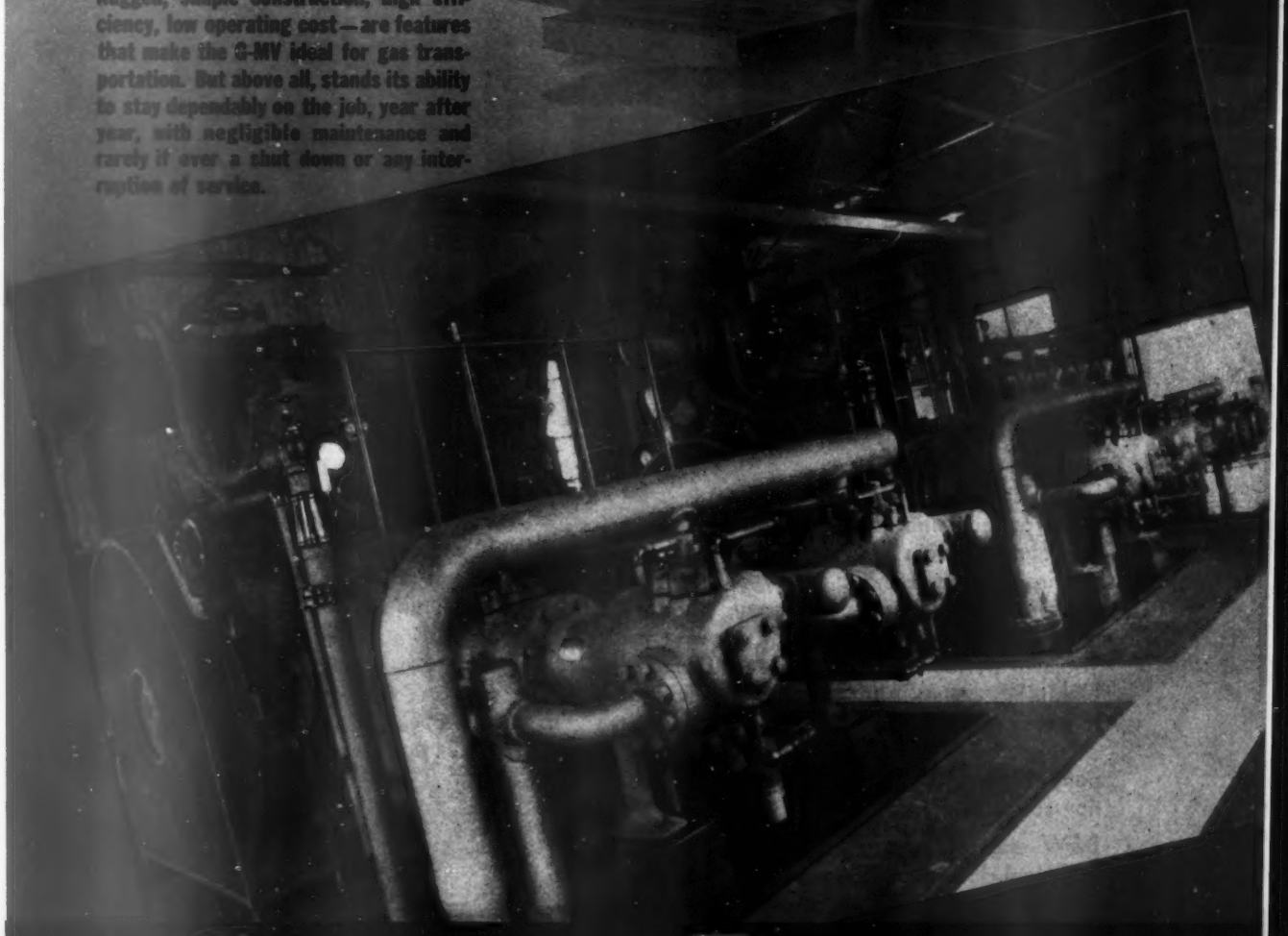
Says Mr. Paul Kayser, President of this oil company, "Our compressor station in Jim Hogg County, directed by the Border Pipe Line Company, our subsidiary, supplies a valuable contribution to the war effort in making available a more effective fuel for the smelting of zinc, one of the most critical of war metals, and in releasing coal and coke for needed war uses in Mexico."

TYPE G·MV ANGLE Compressors

New York Washington Bradford, Pa. Parkersburg, W. Va. San Francisco, Cal. Seattle, Wash.

to smelt zinc for war

Rugged, simple construction, high efficiency, low operating cost—are features that make the G-MV ideal for gas transportation. But above all, stands its ability to stay dependably on the job, year after year, with negligible maintenance and rarely if ever a shut down or any interruption of service.



by **Cooper - Bessemer**

MOUNT VERNON, OHIO AND GROVE CITY, PENNA.

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High octane gasoline leads the list of "critical" war necessities. To keep our planes flying and our mechanized forces moving forward, requires a staggering quantity of gasoline. Anticipating such an emergency, Babcock & Wilcox engineers have been working for years to perfect a seamless steel tubing for high-temperature, high-pressure installations in gasoline refineries. This tubing resists heat and corrosion and has proved highly dependable in the present stepped-up production schedule.

B&W engineers have collected a mass of technical data based on actual tests and experiments. Much of this is included in Bulletin 6-D a copy of which you may have on request. And B&W engineers are always available for consultation on any problem relating to the selection of tubes for refinery installations.

BABCOCK & WILCOX TUBES

HOT FINISHED · COLD DRAWN · CARBON STEELS · ALLOY STEELS

THE BABCOCK & WILCOX TUBE CO., BEAVER FALLS, PA.

TA-1255

THE BABCOCK & WILCOX TUBE COMPANY BEAVER FALLS PENNSYLVANIA

. . . THESE SENTINELS OF LIBERTY!

Across the face of this great land of ours, oil derricks stand like steel-ribbed monuments to our national strength. Above the blue-stem plains of Oklahoma, the pine and sage of Texas, golden fields of Kansas wheat, in 23 states . . . they tower . . . these Sentinels of Liberty.

Built in peace to make a better world . . . today "they also serve" to help win the war—to make a reality of the finer things for which men strive. Now . . . as then . . . *The Oil Bank of America* is working hand-in-hand with the industry which created these landmarks of American freedom.

NATIONAL BANK OF TULSA

The Oil Bank of America

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

McCullough
GUN PERFORATOR
COMPLETION METHODS
Brown Line Print *No. 3*

Set Thru

KEEP YOUR HOLE FULL-SIZE FOR FUTURE OPERATIONS

WHEN the time comes, any work-over job can be done easier, at lower cost, and with greater assurance of success if the hole is large. The practice of setting the casing to the full depth of the well, cementing it solid, and then gun perforating selected zones, provides a large hole for future operations. During the life of the well, this large-diameter working space will pay for itself many times over, besides providing additional production advantages. Moreover, the solid cement sheath protects and supports the casing and eliminates water entry.

For Accurate Location and Deep Penetration, Use the

Hard Shooting-exact SPACING

McCullough

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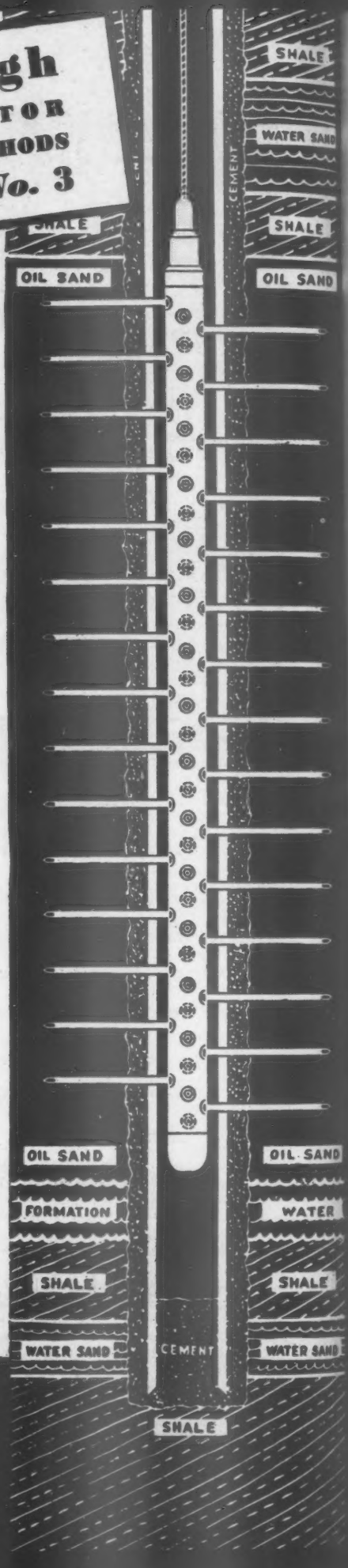

16 SERVICE LOCATIONS

McCULLOUGH TOOL COMPANY 5820 South Alameda Street, Los Angeles, California

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CORPUS CHRISTI, TEXAS
ODESSA, TEXAS

TYLER, TEXAS
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OKLAHOMA CITY, OKLA.

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Classified Advertising

The Market Place for the Oil Industry

UNDISPLAYED RATE

8 CENTS A WORD, minimum charge $2 per insertion.

SITUATIONS WANTED, 4 cents a word, minimum charge $1.

BOX NUMBERS, count 8 words when replies are to be sent to our Tulsa Office.

10% DISCOUNT if 3 insertions are ordered at one time, with check accompanying order.

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FORMS CLOSE MONDAY NOON—PUBLISHED EACH THURSDAY

SITUATIONS WANTED

GRADUATE GEOLOGIST—M.S., married, age 40, 3-A. Six years seismograph interpretations, Mid-Continent areas. Desires permanent location with progressive firm. Box B-751, The Oil and Gas Journal, Tulsa, Okla.

EXPERIENCED OFFICE MANAGER, Accountant and Purchasing Agent, familiar with Oil Field Equipment and Production Practices wants responsible position with small progressive Oil Company or with substantial Independent Operator. Married, one child, draft status 3-A. Correspondence invited and will be held confidential. Box B-760, The Oil and Gas Journal, Tulsa, Okla.

SALESMAN

For the past 9 years I have covered every oil producing state calling on independent producers, drilling contractors and production superintendents with special attention given to Texas and Louisiana. I would like to correspond with any company interested in constructive representation where technical experience is not essential. Good draft deferment. Box B-759, The Oil and Gas Journal, Tulsa, Okla.

CAPACITY INCREASE of crude ninety per cent, fuel consumed decrease twenty-five per cent, utility consumption decreases thirty to forty per cent, with no additional capital investment involved, are some of actual recent accomplishments of refinery manager. Has been with same concern for eighteen years, but desires to make new connection. Graduate Petroleum Engineer, age 43, dependents, release obtainable. Specialty is analysis of factors creating major costs, and attack upon betterments. Will consider proposition with major or independent in Petroleum Industry, or with allied Chemical Industry. Box B-773, The Oil and Gas Journal, Tulsa, Okla.

MAINTENANCE engineer desires maintenance job at natural gasoline or 100 octane plant. Eight years experience in maintenance, operation and construction of natural gasoline plants. Two years of Petroleum Refining at college. Draft classification 2-A. Can obtain release. Married. Age 28. Box B-775, The Oil and Gas Journal, Tulsa, Okla.

LAND AND TITLE MAN—well experienced. Now and for past several years with large independent, operating in several states. Desire connection offering better opportunities. 35, married, draft exempt. Box B-770, The Oil and Gas Journal, Tulsa, Okla.

SITUATIONS WANTED

25 YEARS experience all phases of oil business. 15 years superintendent of one of the largest oil refineries in Mid-Continent. Familiar with newest processes and construction methods, and personnel problems. Box B-754, The Oil and Gas Journal, Tulsa, Okla.

EXPERIENCED land man just released from army, wants connection with substantial oil company. Any reasonable position acceptable. Box B-761, The Oil and Gas Journal, Tulsa, Okla.

ENGINEER, 34, draft 3-A. Inspector, Safety and general topping, cracking, and reforming experience. Desires connection with high octane unit or strong independent. Available in 30 days anywhere. Box B-750, The Oil and Gas Journal, Tulsa, Okla.

SUPERINTENDENT, Chief Chemist, Process Supervision and development. Fourteen years experience in all phases of refinery operations. Includes asphalts, waxes, and specialties. M.I.T. Chem. Eng. graduate. Box B-762, The Oil and Gas Journal, Tulsa, Okla.

PRODUCTION man now employed 17 years with one company desires change, experienced in pumping, gas lifting, and working over wells. Can give good references as to character and ability. Age 37, 3-A. Box B-756, The Oil and Gas Journal, Tulsa, Okla.

WANTED: Permanent position as Petroleum sub-surface Geologist with a small progressive oil company, or with a substantial Independent operator. Familiar with drilling and completion methods. Prefer the Mid-West. 2 A-H draft classification. Available with Availability certificate with approximately two weeks time. Box B-742, The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED

WANTED

Refinery Maintenance Superintendent

Thoroughly familiar with machine shop practice as well as all types of refinery mechanical equipment including pumps, compressors, turbines, piping, welding, etc. At least ten years practical refinery or chemical plant experience required. Graduate engineer preferred. Location Middle West. In replying state draft status and salary required as well as furnishing complete outline of education and experience. This is a good opportunity with a medium sized integrated oil company. Reply Box B-771, The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED

HELP WANTED

Chemical engineer for process design work on petroleum refinery gas recovery and light ends handling units. Five years experience with refinery equipment manufacturer or refiner required. Outline education, experience, draft status, and salary in first letter. Box B-741, The Oil and Gas Journal, Tulsa, Okla.

MECHANICAL OR CHEMICAL ENGINEER, American, preferably under 34, conscientious with sound basic training, experience in petroleum refining or allied industry and thoroughly capable of superintending all phases of maintenance, construction and yard operations in small but growing Pennsylvania refinery. Permanent position with good future. Write personal description and other details, indicate approximate salary desired and send small photograph P.O. Box 388, Warren, Pennsylvania.

REFINERY CHIEF ACCOUNTANT wanted who is well qualified to establish and maintain a complete accounting system; must have ability to direct office personnel. This is a good permanent high class position for the right man. Write Box 2007, Tulsa, Okla., giving full details of experience.

WANTED: Men with Geophysical experience, also mechanics, parts men, radio men and machinists. Independent Exploration Company, 901 Esperson Bldg., Houston, Texas.

NOTICE TO ADVERTISERS

Advertisers offering positions to workers skilled in critical war industries are requested by the War Manpower Commission to include the following sentence in their advertisement:

"Applications from those now employed in war industries will not be considered."

FINANCING

CAPITAL SEEKERS—Interested in raising $25,000 or more for a legitimate project should write to AMSTER LEONARD, Fox Theater Bldg., Detroit 1, Mich.

PATENT ATTORNEYS

PATENTS, Trade-Marks, Booklet, "General Information Concerning Inventions and Patents" and "Free Schedule" sent without obligation. Established 1915. Lancaster, Allwine & Rommel, Suite 418, Bowen Bldg., Washington, D. C.

LEGAL BLANKS

OIL FIELD LEGAL BLANKS

Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

WANTED

ORGANIZED production service company desires additional lines for West Texas and New Mexico. Either sales or service items. Experienced field contact organization with excellent warehouse facilities. Address Box B-727, The Oil and Gas Journal, Tulsa, Okla.

INTERESTED in the purchase of Producing Properties. E. B. Smith, Republic Bank Bldg., Dallas, Texas.

STEEL MANUFACTURER will purchase outright—or manufacture on royalty basis—drilling or pumping specialty. May also employ patentee or owner for sales promotion. Interested in prompt conclusion of working agreement. Write Box B-755, The Oil and Gas Journal, Tulsa, Okla.

Precision machine shop in Houston would like to contact party or organization which has manufacturing to be done in the oil industry.

Our entire capacity no longer engaged in war work.

Box B-774, The Oil and Gas Journal, Tulsa, Okla.

(Continued on Next Page)

CLASSIFIED ADVERTISING — EQUIPMENT FOR SALE

VALVES and FITTINGS—RECONDITIONED and GUARANTEED

Complete Stock—Cast Iron—Cast Steel—Forged Steel

Special Offering

13—18" 150-lb. Cast Steel Gate Valves, Fldg. OS&Y, R.S., D.D.—18½" Face to Face. Price $946.94.

2—18" 150-lb. Cast Steel Gate Valves, Flgd. OS&Y, R.S., Wedge, 17" Face to Face. Price $946.94.

SEND US YOUR INQUIRIES

Refinery Equipment, Inc.

W. C. Berry
Union Ave. at 21st Street

Robert W. Duden
Tulsa, Oklahoma

FOR SALE: 3 Complete Power Rotary Drilling Rigs with approximately 7000 feet 3½" OD Drill Pipe and 12,000 feet of 4½" OD Drill Pipe. All Waukesha, Butane equipped Motors and Gardner-Denver 14 pumps. These rigs are all running and in good condition. Box 331, Carmi, Illinois.

FOR SALE: 20,000' Armored Electric Transmission Cable, #2, 3 Conductor, 1000 Volt, repaired, tested, immediate shipment. Leonard Smith Co., 1526 N. E. 19th St., Oklahoma City, Okla. Ph. 5-0841.

FOR SALE: Steam Drilling Rig complete, equipped with engine, chains and guards. Boiler feed unit. Three 110 HP boilers and drill pipe. First class condition. Rogers Truck Line, Kilgore, Texas.

FOR SALE: STEEL VALVES. 7" O.D. 3000# WP. S.E. Flow Line Gate Valves. 7" O.D. 2000# T C.S. WKM Flow Line Gate Valves. 8⅝" O.D. 3000# T F.S. S.E. Gate Valves. 8⅝" O.D. 4000# T Crane S.E. Gate Valves. 3" 2000# W.P. Timken Mich. S.E. Lub. Plug Valves. Also 3300' #1 4" Flues. BANKOFF SUPPLY CO. Box 2301, Tulsa, Okla.

FOR SALE: 25 Steam Pumps — various makes. ARROW PETROLEUM CO., 7419 Franklin St., Forest Park, Illinois.

Reconditioned, Tested and Guaranteed Gate Valves for sale. Large stock, sizes 16" to 2", flanged end and screw end. Various pressures.

Stock List and Prices on Request.

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Pampa, Texas

OIL . GAS GASOLINE WATER . PIPE LINES

Constructed — Reconditioned — Reclaimed

Complete Engineering if Desired
Survey—Design—Plans—Rights of Way
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CLEARWATER, CALIFORNIA

Over 20 years dependable construction service

FOR SALE: One type FC-OCS Reverse Clutch, complete with 56" 10 groove V-belt pulley. Melton Machinery & Supply Co., Seminole, Okla.

FOR SALE—1—#2 National Drilling Machine, 1—#3 National Drilling Machine with Calf Wheels, 1 set Heavy Shear Poles, 1—125 HP Waukesha Drilling Motor with OSC Clutch, good condition. Johnson Oil Refining Co., Purchasing Dept., Cleveland, Oklahoma.

LIQUIDATING Omar Refining Co., Garber, Okla. Boilers, Tanks, Towers, Steel Buildings, pumps and stills. Omar Refining Co., Garber, Okla.

FOR SALE: 4000 feet, 24 lb., 7-in. O.D. casing in hole 30 miles north of Lusk, Wyoming. Write Vincent Carter, 405 Majestic Bldg., Cheyenne, Wyoming.

FOR SALE: Several rebuilt and guaranteed 100 HP Superior twin direct gas driven compressors. Cylinder sizes to fit the job. One rebuilt 165 HP twin Bessemer Type EC gas engine, 180 RPM. We carry a stock of spare parts for all of the above. Cylinders of various sizes and manufacture. L. F. SMITH CO., 217 West Archer, Tulsa, Okla.

FOR SALE: 6¾ x 12 Union Tool Mud Pump Unitized on one skid with two Mercury Fords, V-V Belt Drives with transmissions. Price $2000.00. U. S. Machine Shop, Electra, Texas.

FOR SALE: 1—Gasoline Power Drilling Rig good for 3000'. 2 Jones Stagg Gas lifts complete with lines. Also Steam Drilling Rigs and pipe and casing of all sizes. We also purchase abandoned Leases, Refineries, pipe lines and other oil field equipment. If in need of material, or have material for sale, communicate with LOUISIANA IRON & SUPPLY CO., Shreveport, La., Phone 5223, or L.D. 1.

FOR SALE: Streamline Wilson Giant Power Rig, complete with 7¼ x 18 Oil Well power pump, 27½ oil bath Union Tool rotary table, 200 HP Waukesha Motors. 122' derrick—everything latest type. Address Box 239, Abilene, Texas.

FOR SALE

WINKLER-KOCH
FRACTIONATING TOWER

Size 8 ft. 6 in. by 80 ft. with 7 ft. Skirt, equipped with 30 Bubble Cap Trays, 29 Manways. 18 in. Vapor Nozzle. Vapor and Liquid Nozzles, Reflux and bypasses for Naphtha, Kerosene and Gas Oil cuts. 40 lb. Hydro Tested. Steel Ladder.

Blue Prints

THE REFUGIO REFINERY
1204 Alamo National Bldg.
San Antonio, Texas

FOR SALE: Two only 2500 Bbl. Riveted steel oil storage tanks. Two only 1500 Bbl. Bolted steel oil storage tanks. All erected in Oklahoma City. See and buy as is. Also four only 10' x 20' horizontal type welded steel gasoline storage tanks located at Kaw City, Okla.—the four $1200.00. John Irby P.O. Box 4387, Oklahoma City, Okla.

FOR SALE: Cardwell R. L. Drawworks with spudder attachment and Waukesha engine, also H.X.E. Hercules engine, and a 92' mast with base. Equipment in excellent condition. Located at Salem. Harvey H Sims Drilling Company, Box 180, Salem, Ill

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FOR SALE: Used wire lines for shallow well drilling, sizes ⅞", ⅝", ¾", and ⅞" lengths 1000' to 6000'. No splices. Visit our yard and see the lines spooled before buying. Double value in every line, save 50 per cent. General Tool & Supply Co., P.O. Box 4387, Oklahoma City, Okla.

FOR SALE: One 7" RB Union Tool Draw Works unitized; one Johnson Jack Shaft type Draw Works unitized. Both in A-1 condition. Inquire T. T. Eason and Company Enid, Okla.

FOR SALE: Four 10 x 4½ x 10 Duplex Steam Pumps, make Worthington and Gardner-Denver. Good condition. Inquire T. T. Eason and Company, Enid, Okla.

WE have on hand for immediate delivery the following new Hoists: Four single drum with well capacities of 2,500—3,000—3,500 and 4,500 feet respectively. Also one double drum with spudder, capacity 6,000 feet. Muskogee Iron Works, P.O. Box 1547, Muskogee, Okla.

FOR SALE: 1—84' angle iron derrick with crown block. $300.00. Melton Machinery & Supply Co., Seminole, Okla.

3—LUCEY boilers & headers, Ideco drawworks, Ideal and Oil Well twin cylinder drilling engines, 18" Wilson-Snyder, & 14" Ideal pumps, drilling cables, engine substructure, Moon generator, 9000'—4½" & 3½" drill pipe, 1000'—4½" Victaulic groove pipe, Brewster core collar, bbls. reel & line. Xmas tree, 4000# test, other equipment. First class condition. Priced right. Sorrento Petroleum Corp., American Bank Bldg., New Orleans, La.

FOR SALE: 9000' or any part used 3 conductor electric cable in good condition for any service 1000 volt or less. Price 25c to 45c per ft. Free sample on request. John Irby P.O. Box 4387, Oklahoma City, Okla.

FOR SALE: Four GA-8 Cylinder Superior Diesel Engines in good working condition. 4½" bore by 5¾" stroke. Rated 83 HP at 1200 RPM. Engines without clutches but with stub shafts. For sale with or without Young-Happy radiators. Suitable for standby electric generator service. DRILLING & EXPLORATION COMPANY, INC. Box 1575. Hobbs, New Mexico.

LUMBER FOR SALE

Douglas Fir lumber direct from mill to you, any size up to 100' in length. Also Oak and pine timbers. Gaiennie, Box 1074, Shreveport, La.

FOR SALE

1 Gould Centrifugal 2 stage pump—3" suction and 2" discharge. Powered with 75 HP Allis-Chalmers Splash-proof motor.

1 Dayton Dowd Centrifugal 2 stage pump—3" suction and 2" discharge. Powered with 50 HP General Electric motor.

1 set Blackmer Twin Rotary Pumps—2" suction and discharge. Powered with 3HP GE motor. Pumps can be operated either singularly or simultaneously.

Al Brown Kilgore, Texas

"Take care of yourself, Dad"

Last year over 180 *million* man-*days* of productive time were lost through industrial accidents—many of them needless. Think how many tanks, ships, guns, planes those 180,000,000 man-days of work would have made! . . . Yes, dad—take care of yourself. Your soldier-son needs your factory production to win.

American Cable **TRU-LAY PREFORMED WIRE ROPE** is helping keep down accidents every day because it is a safer rope to use and handle. **TRU-LAY PREFORMED** resists kinking and snarling. It resists whipping; spools better. Worn, broken and chisel-sharp crown wires refuse to wicker out to jab workmen's hands. They remain in place, making **TRU-LAY** *much* safer to handle.

Use American Cable **TRU-LAY PREFORMED** for your next rope. Do everything possible to reduce lost-time accidents. America needs your full-time production.

TRU·LAY *Preformed*

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AMERICAN CHAIN & CABLE COMPANY, Inc.

BRIDGEPORT, CONNECTICUT

ESSENTIAL PRODUCTS... AMERICAN CABLE Wire Rope, TRU-STOP Emergency Brakes, TRU-LAY Control Cables, AMERICAN Chain, WEED Tire Chains, ACCO Malleable Iron Castings, CAMPBELL Cutting Machines, FORD Hoists and Trolleys, HAZARD Wire Rope, Yacht Rigging, Aircraft Control Cables, MANLEY Auto Service Equipment, OWEN Springs, PAGE Fence, Shaped Wire, Welding Wire, READING-PRATT & CADY Valves, READING Electric Steel Castings, WRIGHT Hoists, Cranes, Presses . . . *In Business for Your Safety*

Hundreds of "Contributaries"

feed their production into channels which flow into the hulls of ships as they are launched — for these empty hulls must be completely outfitted before they become commissioned ships.

Illustrated are some of the castings Hughes Tool Company is producing to speed the commissioning of ships — these and numerous other war products *in addition to tools for the essential Oil Well Drilling Industry.*

HUGHES TOOL COMPANY

HOUSTON TEXAS

Senior Organization in Men and Management for

HUGHES AIRCRAFT STRUT DIVISION—DICKSON GUN PLANT—HUGHES AIRCRAFT COMPANY